

## GPRS considerations for mobile email

by John Pagonis, September 2003

In the previous article we discussed the basic facts of GPRS that need to be understood when using and developing Internet-based applications for mobile networks. We outlined the significance of PDP activation, the selection of appropriate APNs as well as issues of NATed gateways.

We also explained that multi-homed devices allow for simultaneous usage of many GPRS services such as WAP, MMS and Internet access. For IP-based applications we showed that it is preferred to use NAT-friendly protocols such as TCP and that application-layer protocols that encapsulate the host's address should be avoided.

One such application that has evolved to a vital business tool, as well as being the most common form of communication on the Internet, is email.

### Email over GPRS

Symbian OS phones can access email services 'out of the box' using the most popular email retrieval protocols, namely POP3 and IMAP4. Symbian OS developers have access to APIs and frameworks to either enhance or make their own email client applications on all Symbian OS phones, should they wish to.

Corporate administrators can also set-up their mobile users to use email on Symbian OS phones, securely over SSL or TLS, to their corporate POP3 or IMAP4 servers.

### Considerations for email over GPRS

It is easy to set-up a Symbian OS email client to retrieve and send emails on a GPRS network. However, it is prudent to first examine some aspects of GPRS networks and email clients, before we deploy or develop for such mobile email clients.

Unless on a flat-rate GPRS billing scheme (that some operators have now introduced) users need to consider the cost (and benefits) of mobile email; which is something that affects the selection of the access protocol to be used. For example IMAP4 can be more efficient than POP3.

For non-corporate users, that do not maintain their own IMAP4 server, the selection of email access protocol may well also affect their selection of ISP or email service provider.

Security considerations also affect protocol selection, as well as email client, and thus sometimes Symbian OS phone selection. If for example corporate policy dictates that email clients (as well as users) need to be authenticated, then Symbian OS v7.0 or v7.0s phones need to be deployed, since they support SSL/TLS client authentication.

Due to the bandwidth limitations of GPRS, as well as the volume-based billing schemes, email users have to consider seriously what they download (e.g., are attachments crucial?). Most importantly users need to assess the cost of junk email, which on GPRS may be prohibitive. Again this comes down to selection of ISP or email service provider for non-corporate users; or proper server-side spam filtering for business users.

It is worth noting here that spam filtering has to happen server-side as it is neither economical nor advisable to filter spam on the mobile devices. If that was the case then the cost of downloading the junk email will be the same as before while the battery would more rapidly run out.

Another consideration for some users may be the immediacy of email delivery to the mobile phone. For example, very important emails may need instant attention from the user; which may have decided to use an out-of-band mechanism like SMS, MMS, instant messaging or even automated voice calls to be notified in order to retrieve such emails. Such schemes are certainly possible and are offered by some email or other internet application service providers and can be integrated with business systems. Moreover the Symbian OS messaging framework and clients can be programmed to automatically retrieve emails upon reception of such out-of-band notifications.

For casual users where setting up such schemes may be potentially too expensive, users may opt to poll their mailboxes, every hour (for example) or let their clients automatically check their email at pre-defined times (like the Sony Ericsson P800 client does).

## **More considerations**

We discussed, above, such a familiar application because we have to illustrate that mobile phone developers need to cater for new aspects and paradigms, even when dealing with well-known application domains such as email.

Hopefully we have now made the point that bringing familiar Internet-based applications to mobile phones requires some special attention to the aspects of modern mobile phones and the characteristics of the mobile Internet GPRS-based network.

One of these aspects that we touched upon in the previous article, is that of multi-homing and APN selection. In following articles we will experiment with new APIs that deal with multi-homing and present paradigms and scenarios for their correct usage.

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