

OwnMail's Structured Messaging

Introduction

Currently email is structured (grouped) by way of inbox, i.e. I can send an email to your inbox and you can send one to mine. However, it is possible to structure email by way of customer, supplier, transaction or any atomic level of organization decided. The structuring of the content and context of email is termed Structured Messaging (SM).

Structures Messaging detailed

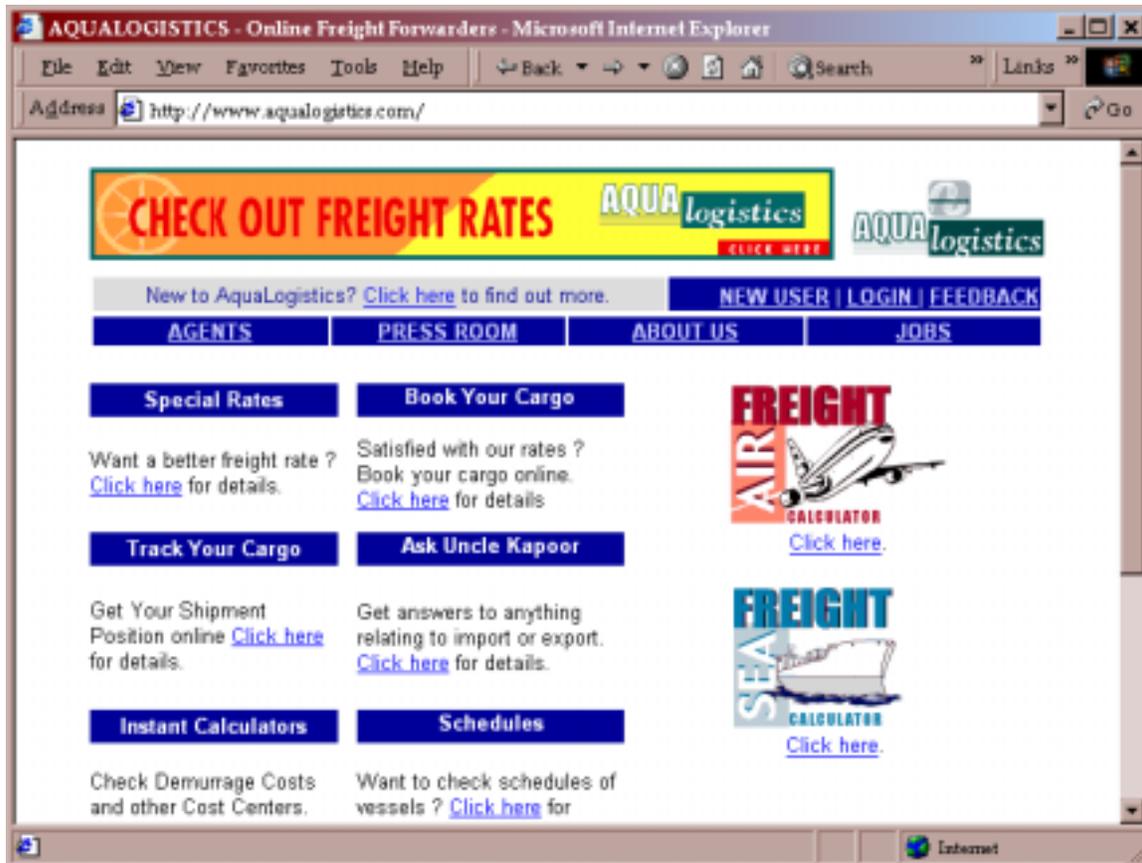
On the subscriber side, SM does away with personal email ids to send and receive email. Instead, an "atomic level" of organization is decided. This could for example be a transaction or a customer. It is called the atomic level, since once decided, it cannot then be subdivided. E.g, if the atomic level is the customer, then it cannot be reduced to the level of a transaction with a customer. However, if the level chosen is that of a transaction, then it can be aggregated to that of a customer.

The significance of an atomic level is that messages relating to an instance of the level are segregated and given some of the attributes of a mailbox. It can be downloaded using POP3 or SMTP, displayed, and normal mailbox operations can be carried out on it.

Example of a freight broker

Aqualogistics.com is an online freight broker / market place. Traders can log on and negotiate freight rates for their consignments from airlines and shipping lines. These negotiations are protracted and largely done by way of email. Aqualogistics uses OwnMail's SM to bring order to this email as detailed in the following example with screen shots.

1. Aqualogistics is an online freight broker that enables a trader to negotiate special (lower than list) freight rates, then book cargo on line and finally track the progress of the cargo through transshipments.



- Customer logs on to site to request a special freight rate for an upcoming consignment. In this case it is an air consignment of garments from Mumbai to London.

AQUA - Query Air Freight Rates - Microsoft Internet Explorer

Address: <http://www.aqualogistics.com/airfreightupd.exe?firmno=1&logname=sush>

Special Rates Request Form

Please Indicate Which Service You Require: Air Freight Rates

Destination...

From: India, To: United Kingdom

Mumbai, London

If the required airport is unlisted then select OTHER and list it in Additional Information

Product Details...

Description Of Goods: Garments

Are the goods hazardous: No

Total Weight: 12 Kg

The Freight is calculated on the actual weight or volume weight whichever is higher. To know the chargeable weight please give us the following details. (optional)

Number Of Pieces: 12

Weight Per Piece: 12

Dimension Per Piece (Length x Width x Height): 12 x 12 x 12 cm

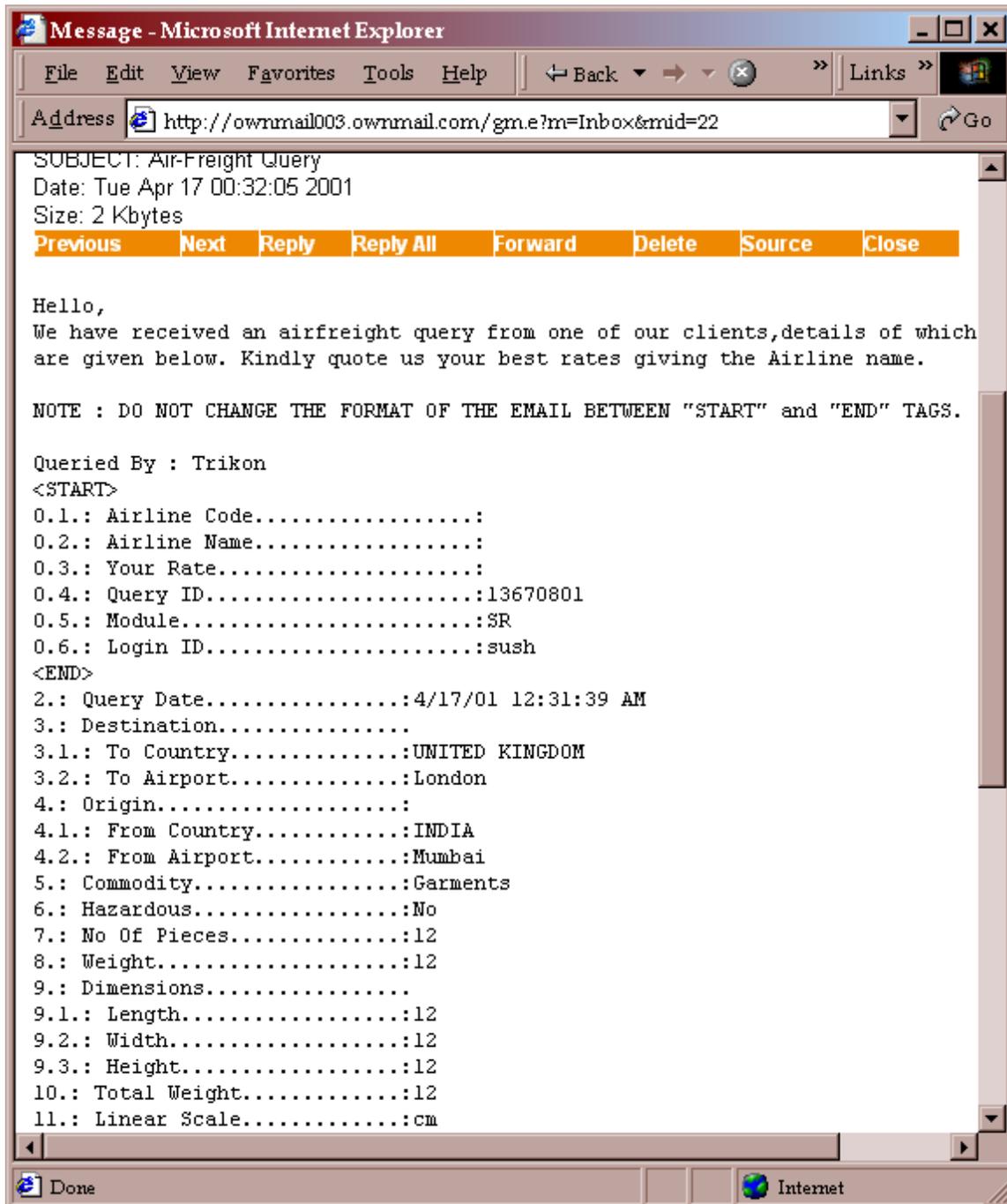
What is the bargain you are looking for? (currency,value,unit): INR 555 per

Probable date of shipment?: 16 Apr 2001

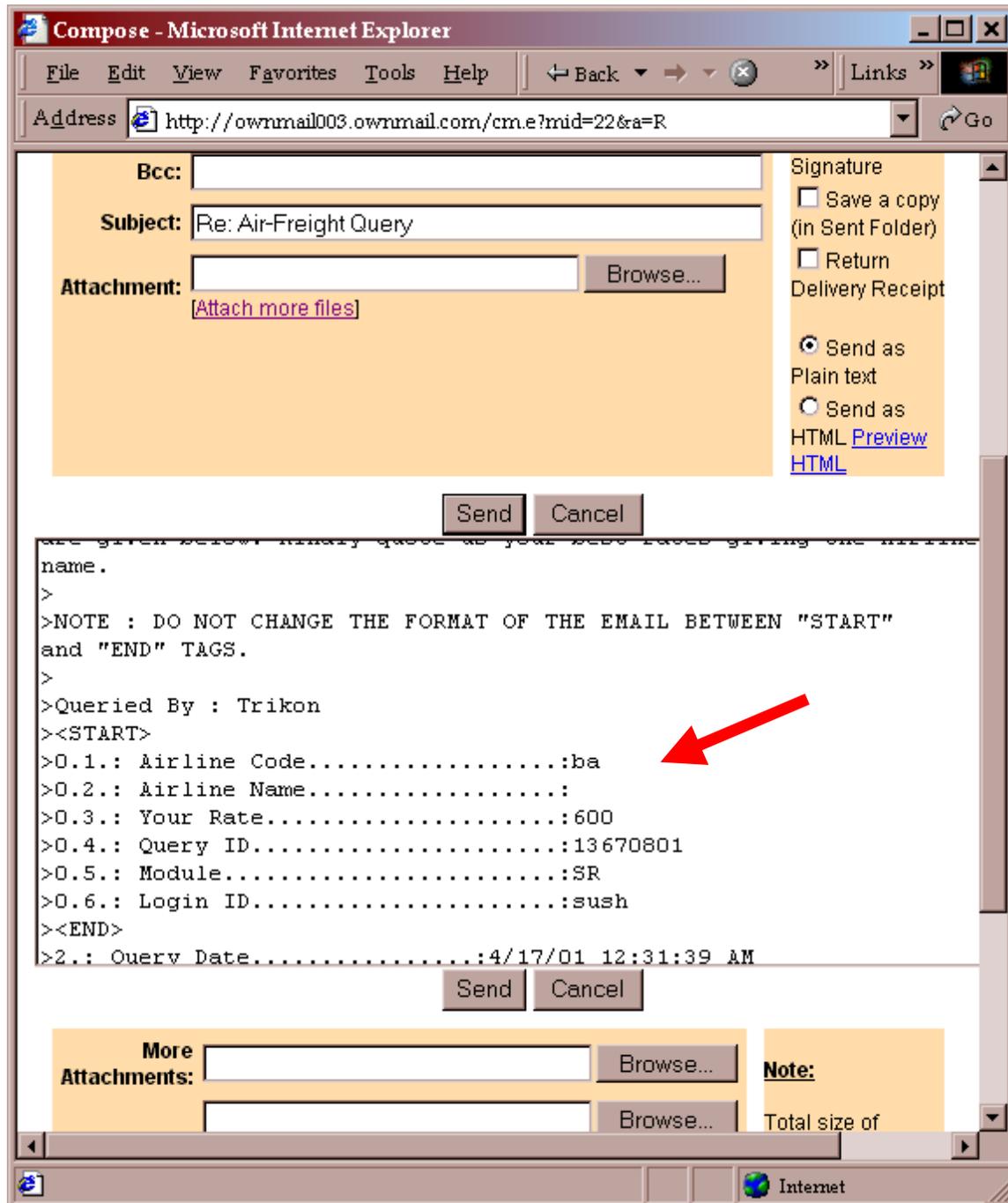
What is your priority?: Transit Time

Additional Information:

3. Shippers that are relevant to the route are automatically intimidated by email that a special freight rate has been requested. This email uses structured content, but can be understood by humans. The screen shot seems to suggest that the responding airline is a customer of OwnMail, but in reality the airline will receive this structured email as just another message using its existing email system, such as Lotus Notes, Outlook, or even Hotmail!



4. The airline replies to the request (using its reply feature) inserting just the rate and in this case the airline code.



- The information contained in the reply is automatically inserted into the application by OwnMail using its mail to XML/HTTP converter. The screen shot below shows the intranet of Aqualogistics, with the replies from British Airways and Air India updated for this query. Again note that while the screen shot seems to suggest that both respondents need to use OwnMail email services, this is not true. The respondents can use any existing email infrastructure.

Aqua Staff - Microsoft Internet Explorer

Address: <http://www.aqualogistics.com/menu.exe?isFrameSet='n'>

[Cargo](#) | [Rating](#) | [Air Freight](#) | [Sea Freight](#) | [Tools](#) | [Logout](#)

Air Query Details

Query Number : 354 Query Date : 4/17/01 12:31:39 AM
 To Country : UNITED KINGDOM To Airport : London
 From Country : INDIA From Airport : Mumbai

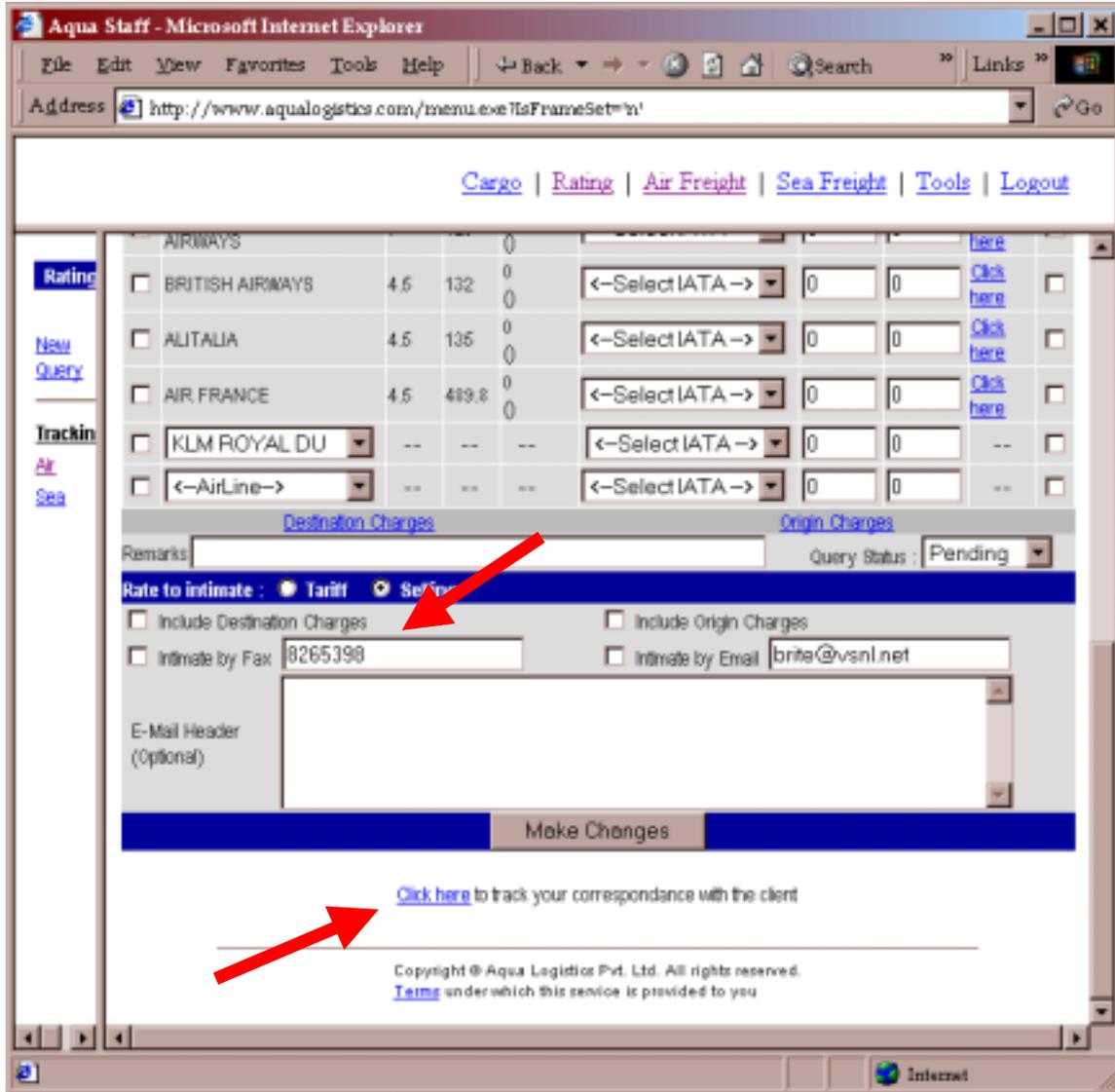
Commodity: Garments
 Length : 12 Width : 12 Height : 12
 Hazardous : No No. Of Pieces : 12
 Weight : 12 Total Weight : 12 [Calculate](#) chargeable weight
 Measurement In : cm Weight In : kg
 Bargain Price : (currency,value,unit) INR. 655 \$
 Additional Info :
 Shipment Date : 4/16/01 Priority : Transit

[Copy Query](#)

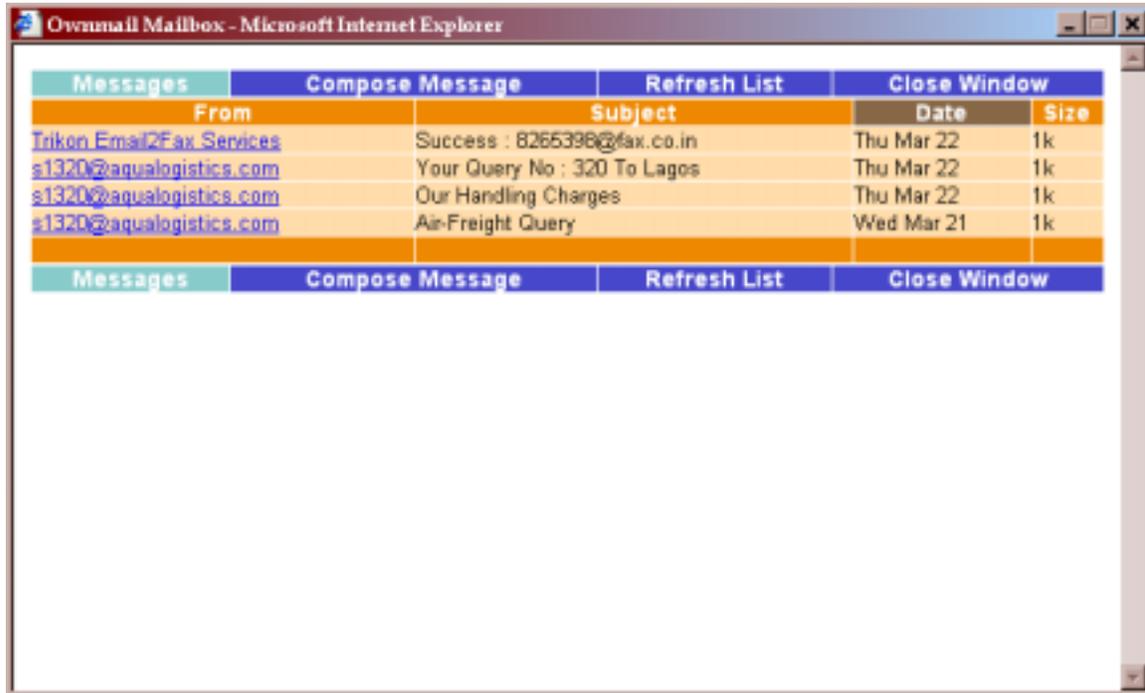
Past Remarks		
Date	User	Remarks
4/17/01 12:35:17 AM	brishair@ownmail.com	Rate updated by brishair@ownmail.com : 600
4/17/01 12:33:41 AM	airindia@ownmail.com	Rate updated by airindia@ownmail.com : 575

Airline	S. Chg	Listed Rate	Previous Buy Rate	IATA	Buy Rate	Sell Rate	History	Acc
<input type="checkbox"/> EGYPT AIR	2.5	97.65	0	←-Select IATA-→	0	0	Click here	<input type="checkbox"/>
<input type="checkbox"/> SRI LANKAN AIRLINES	-	-	0				Click	<input type="checkbox"/>

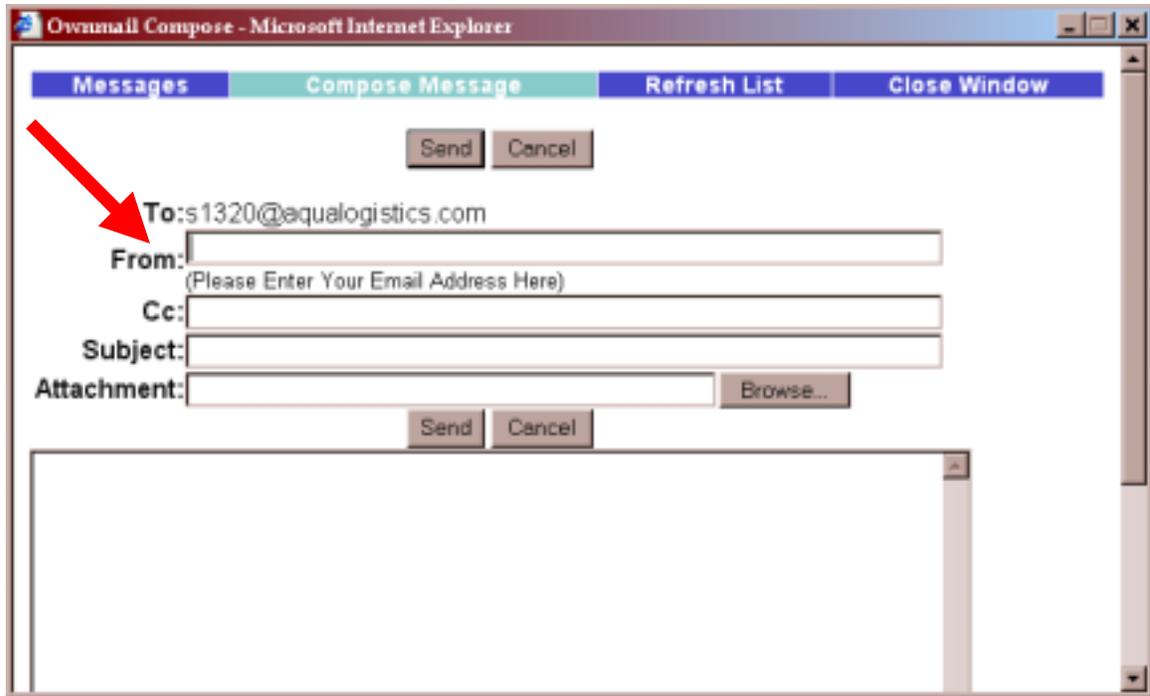
6. Aqualogistics also uses structuring by context. The next screen shot displays a link at the bottom that throws up the correspondence relating just to this transaction. As an aside, also note that Aqualogistics uses OwnMail for fax messaging too.



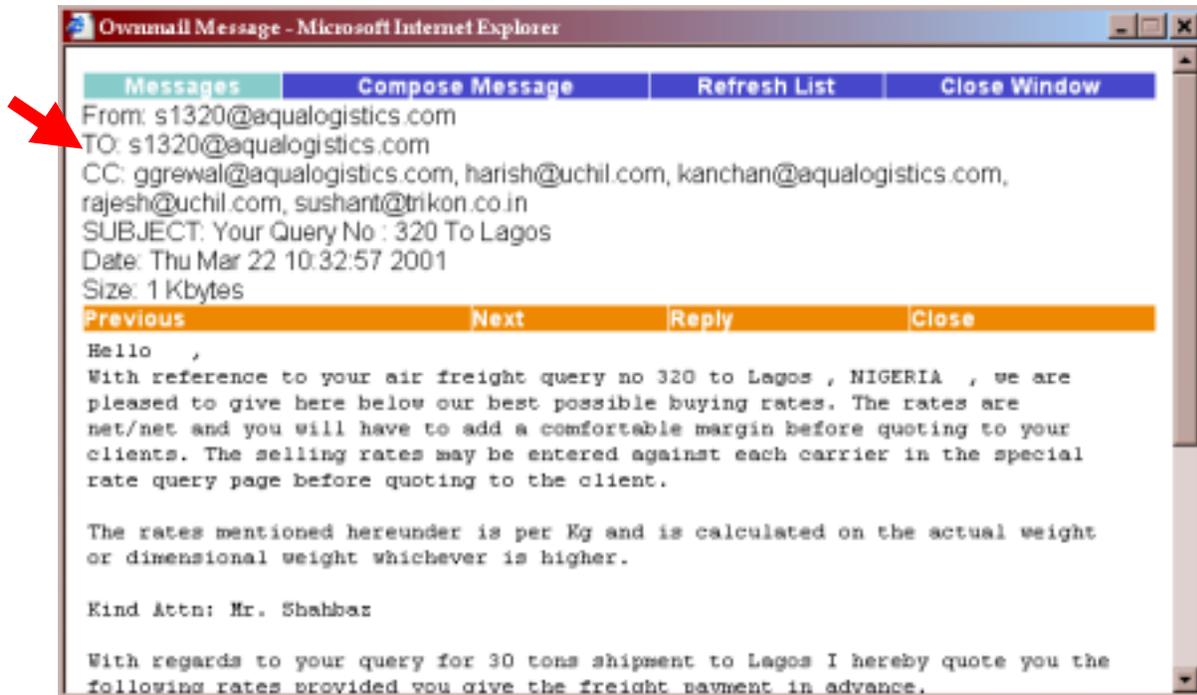
7. The next screen shot shows the "mailbox" thrown up by OwnMail that relates to this transaction. Only messaging relating to this transaction is shown here. Even confirmations of fax messages sent are available here. A CRM application or executive can now easily go through the record of past correspondence on the issue.



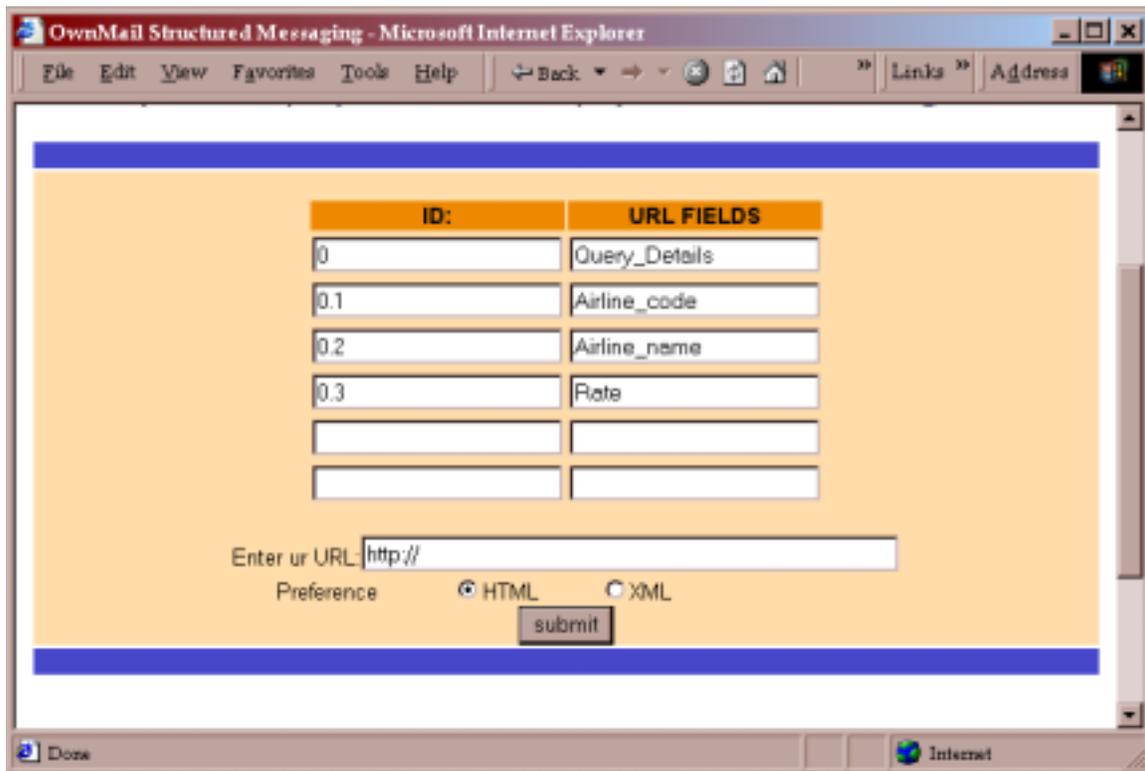
8. Note that the compose box does not require a "To" address, rather (in this case) it asks for a "From" address. This best illustrates how SM dispenses with personal email Ids on the subscriber side.



9. SM supports normal unstructured messaging also. The message below has copies to normal mailboxes.



10. Screen shot below shows a configuration page for OwnMail's mail to XML/HTTP converter.



11. Summary: - The preceding example shows that for the subscriber of OwnMail services, in this case Aqualogistics, automation is complete. Suppliers, in this case the airlines, are automatically intimated of a request, and there responses are automatically updated into Aqualogistics' database. There has thus been no human intervention on Aqualogistics part.

Uses

One of the primary uses of Structured Messaging (SM) is as a mail system for applications. By adding structure to the content and context of email, we make it easy for software to make use of it. Some promising applications that may benefit from SM are: -

1. To connect enterprises with their customers. CRM software has ability to do everything but correspond intelligently with customers by way of email. While crude search and order tools do exist, they place many restrictions on the complexity of the interaction with the customer. Further, they are not very reliable in their ordering ability. By allowing far greater structure in the interaction with the customer, SM opens up a whole new vista in CRM ability. For example, the atomic level could be configured at the level of the customer, which would then give the ability to maintain a separate mailbox for each customer.
2. To connect enterprises to small suppliers: - Supply chain applications can use SM as the primary interface to connect to suppliers to send and receive documents. SM in the hands of the supplier will be a normal email message that he receives using his existing email account. It thus uses extant infrastructure with zero additional investment. However, for the enterprise hosting the application, automation is complete, since the mail is being sent and received by the application with no human intervention.
3. To connect applications to one another despite poor Internet infrastructure: - XML based messaging is currently largely of the instant variety. This presumes good Internet infrastructure between the applications talking to one another. By using SM, applications can leverage SMTP's multihop architecture and repeated automatic delivery attempt capability. While the content of such messages is already structured by XML, SM brings to the table structuring of context. For example this would allow reversal of a transaction that has been entered into using email.

Technical details: -

OwnMail's SM is written largely in c++. It is designed to be suitable for delivery as a hosted service as well as a server. It runs on Slackware Linux. It uses Intel architecture and is rated at 500,000 mail operations per server per day. OwnMail includes high-level tools for delivery of normal mail services too via a sophisticated web interface, or POP3 protocol. Applications can use it to send and receive unstructured mail, or send fax messages, throw up a mailbox, etc.

Summary: -

OwnMail's SM provides a means for applications to leverage the power of email by bringing structure to the content and context of messages. The subscriber achieves high level of automation. OwnMail's server also includes powerful tools for normal unstructured messages, such as the ability to throw up a mailbox, send a fax, download messages etc. By using OwnMail for an application's email needs, application writers can achieve cross platform portability without the need to maintain in house SMTP skills.