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Summary of Groupware User Requirements

Collation and Prioritisation

Saved as:	27.ODIT.PWJ Analysis of groupware requ Feb 2008 vs 10.doc
Initial date:	1/02/2008
Latest revision:	After final checking by Groupware Panel following ultimate meeting
Version:	10
Document status:	Final
Author:	Paul Jeffreys
Comments:	Based on work of Panel through all its meetings
Distributed to:	Groupware Panel

1. Introduction

The Groupware Panel has prepared Groupware use-cases, converted these into potential components for a solution and then prioritised into a set of **8 essential components**. Each of these components was evaluated, unpacked, and a description given (see Appendix A).

This document is an analysis of the returns detailing the unpacking of the 8 components which are required within a Groupware solution for the University of Oxford.

2. Foreword

In section 3, results from an analysis of the 8 essential components have been used to define a list of sub-component user requirements; detailed technical requirements will be developed as part of the selection and procurement phase. Generic requirements (not necessarily focused on users) gathered by the Panel have been included in a 'Groupware Category'.

In section 4 the sub-component user requirements have been collated into an overall set, and these have been separated into two categories of: 'essential' and 'desirable'.

3. Identification of requirements within key components of Groupware solution

a) Groupware

- Groupware Support: on-site expertise in system internals or support contract, and disaster recovery offered through service level agreement
- Groupware Scale: ability to scale all components of Groupware solution to scale[1] required by the University (see individual headings below for further details)
- Groupware Legal: a solution must be chosen which meets the legal requirements of the University and is acceptable to users (for example with respect to whether data is held off-site)
- Groupware Architecture: a solution must be chosen which gives the same 'look-and-feel' across components within the Groupware solution

b) Email

- Email Scale: ability to scale to 55,000 accounts, with 37,000 being live and 28,000 being typically active in any one day
- Email Logins: ability to cope with peak rates of over 1300 logins per minute
- Email Sessions:- ability to cope with over 15,000 concurrent sessions

[1] The scale will vary with time. Initially it will be for 'early adopters', finally for all students and a large fraction of staff.

- Email Standards: ability to use standards compliant IMAP software against the IMAP server; RFC compliant SMTP server for message submission; Support for GSSAPI/kerberos for Oxford SSO; Support for TLS/SSL in encrypting passwords/connections
- Email Support for Attachments: support for a variety of attachment types
- Email Support for Shared Mail Folders: support for shared mail folders (with other group members etc.)
- Email Synchronise: ability to synchronise inbox with mobile devices (e.g. Windows mobile, syncML, BlackBerry, OpenSync, ActiveSync)
- Email Web Access: must have web access with full functionality
- Email Address Book:: ability to download a common address book and to interoperate with common email clients
- Email Accounts: ability to manage accounts using a University wide solution which is common to other business processes

c) Calendar and Resource Booking

- Scale: similar to that outlined for Email, above
- Calendar Multiple: ability to manage multiple calendars, to allow the user to (e.g.) keep administrative, research and social appointments separate
- Calendar Reminders: ability to send reminders of events in the form of emails, SMS messages, or by pop-up
- Calendar Visibility: ability to see calendars of other people alongside the user's own, or view public calendars such as public holidays or University events which are available in ICS format
- Calendar Event Creation: support of repeating events, events spanning several days, timed or all day events, and repeating events
- Calendar Invitations: ability to send invitations to an event to other users; this includes individual internal users, external people (identified by email) and locally-defined groups
- Calendar Event Classification:- classification of events into private, visible to friends, and public; ability to say whether events are transparent, or block out time
- Calendar Event Management: creation, editing or deletion of events using web-based, desktop, or mobile clients; injection of events into the system by other software using an API in several languages or by a REST interface
- Calendar – Use of Groups: associating calendars with groups of people and resources (groups will be managed dynamically by an Oxford Groups Store service)
- Calendar Data Import/export: Sharing of calendar data with other software using common interchange formats and protocols; including iCalendar ICS format and the CalDav protocol; export of calendars in RSS Atom format
- Calendar Resource Booking: booking of resources, such as rooms, equipment or refreshments.; managed using the same calendar interface and scheduling system, so that colleagues' availability is shown alongside free meeting rooms
- Calendar Synchronisation: support for synchronisation with desktop applications, phones, PDAs and laptops using Palm, Symbian, Windows Mobile, Blackberry, Linux and MacOS software

- Calendar Synchronisation (2): two-way synchronisation by direct wired connection to a desktop, by network connection (including wireless), or by the mobile phone network (some methods may involve interaction with an intermediate software program)
- Calendar/Email attachment: ability to make a calendar entry by clicking on an attachment in an email

d) Contact list

- Scale: similar that that outlined for Email, above
- Contact List Autocomplete: ability to auto complete
- Contact List Nearest Search: ability to show nearest search results (and give multiple entries for an individual)
- Contact List Similar: ability to do "Sounds like" search
- Contact List Search: ability to search on all fields
- Contact List Complete: ability to show full record with mouse hover over completed field
- Contact List Medadata: ability to customise Metadata (should be able to contain: name, email address, phone number, department, collage affiliation, allow for multiple departments and collages)
- Contact List Database: ability to be able to change structure of database, and still be able to work with old data.
- Contact List Mail-Merge: ability to be mail-merge compatible (export to word processor)
- Contact List Personal Contact: ability to create personal contact lists (external contacts)
- Contact List Personal Mailing: ability to create personal mailing lists
- Contact List Directory: ability to create a shared/group directory
- Contact List Proxy: ability to: give proxy access to personal directories (e.g. manager and PA)
- Contact List Import/export: Import/export facility
- Contact List Ex-Directory: Ex-directory facility.

e) Remote Access

- Scale: similar that that outlined for Email, above
- Remote Access Cybercafe: ability to access full Groupware functionality when in a "cybercafe" type environment – *i.e.* one where the user has no control over the machine they are using; platform agnostic; no specialised plug-ins
- Remote Access Integration: ability to integrate fully with desktop clients commonly in use at the University

f) Student Information System (SIS) Interface to Groupware Solution

- SIS Direct Access to Groupware: ability for students and staff to have *direct access* to Student Self-Service or OSS via the Groupware solution; this link/integration will not require the user to re-enter a username or password; for example, the student will be able to see his/her exam details, correspondence details, etc, in the Groupware solution, either through widgets, or integration into Calendar/email/address books. (at a minimum, this will be a hyperlink to the existing student self-service pages or staff OSS pages)

g) Mobile Access

- Scale: uncertain; eventually possibly similar that that outlined for Email, above

- Mobile Access IMAP: IMAP functionality for connection to variety of mobile devices
- Mobile Access Full Functionality: for mobile solutions to offer full functionality from the groupware implementation will require third party interfaces (eg Intellisync and Blackberry Enterprise Server) and the Groupware solution must be compatible with this additional software

h) Data Encryption

- Scale: uncertain; it is likely that a small number (possibly a maximum of only a few hundred) may require the email encryption and verification; it is likely that a greater number (possibly a maximum of only a few thousand) will require encryption (and shared storage) of documents etc.
- Data Encryption Email: some users require the facility to send and receive confidential information securely and easily via Email – including attachments and documents; this should have different levels of sophistication, from simple transfers to full solutions for a small subset of users with stringent requirements
- Data Encryption Email Verification: the Groupware solution should be capable of identifying to others that users are the author of an Email; verifying the sender of an Email; encrypting outgoing Email messages and attachments; decrypting incoming (encrypted) Email messages and attachments
- Data Encryption Documents: users require standard, straightforward and secure means of accessing, modifying, storing and transferring electronic documents and data; when working locally on files that are permanently stored locally; when working remotely on files which are stored locally; when working on files that are stored on a notebook computer that is used inside and/or outside OU; when transferring files between local and/or remote machines

i) Shared Data Repository

- Scale: similar that that outlined for Email, above (although it is doubtful that 'peak rates' and 'sessions' will be as high)
- Shared Data Repository Standards: the Groupware solution must satisfy the standards to enable it to interoperate with a shared data repository which uses a common solution for defining groups
- Shared Data Repository Access: must be accessible by all categories of users, and searchable
- Shared Data Repository Access Control: must offer access control to group sections (directories or sub-directories) of the repository (and the corresponding authentication) could be enabled either manually for specific users identified by means of an agreed ID and/or password or otherwise allocated dynamically from database information for much larger general groups of users
- Shared Data Repository Version Control: must allow version control, modification history
- Shared Data Repository Documents: must support - online lecture notes, tutorial problem sheets, other teaching materials and examination papers, online committee papers and working group reports, agendas and minutes; online documents for research collaborations, projects, grant proposals and conference/workshop organisation; online personal files and documents which would be accessible to the individual without the need for a laptop or memory stick when away from Oxford or other home base
- Shared Data Repository Remote: must have web access
- Shared Data Repository Cross-Platform: must be cross-platform

- Shared Data Repository Private Space: a space to develop document before they are transferred to public spaces
- Shared Data Repository Group Communication: a tool to facilitate discussion about content in the shared document space

j) Interoperation with Core User Directory (IdM System) and groups store

- Scale: similar that that outlined for Email, above, in terms of numbers of users
- IdM System Interface: the Groupware solution will need to consume (but not return any of) the following attributes from the Core User Directory (and other central repositories of information, such as the Groups Store) - Unique Identifier, First Name, Last Name, Email Address, Role[2], Groups[3]
- IdM System Dynamic Connection: data in the Groupware implementation will need to be updated on a regular basis, and will ideally be event-driven
- IdM Systems Standards: the groupware solution will need to support one or more of the following technologies for data lookup or export -XML, Delimited text, LDAP

k) Technical Requirements

This document is primarily focussed on capturing user requirements. However some technical requirements have been collected by the Panel. These are too detailed to be presented here, but the following principles will be included in the technical (largely back-end) requirements that will be needed for a large scale deployment across such a diverse group of users (both in terms of behaviour and operating systems and software in widespread use).:-

- Scale
- Bulk importing and exporting and programmatic interfaces
- Activities such as data import and export that should not affect user service whilst running
- Standard formats for data
- Maintenance activities
- Authentication, authorisation and integration with the institutional single sign on
- Backup and restore
- System management and maintenance (FTE required)
- Possibilities for federated administration
- Serviceability
- Availability
- Reliability
- Expertise needed for restore demands from users (e.g. email, calendar events etc.)
- General account management overhead
- Standards compliance

[2] Note that the Role@Scope field is multi-valued. We hope to be using the eduPersonScopedAffiliation field as defined in the eduPerson object class specification at http://www.nmi-edit.org/eduPerson/internet2-mace-dir-eduperson-200312.html.
[3] The mechanism for recording groups has not yet been specified. It may be possible for the specification to be influenced by the chosen groupware solution.

- Audit trail

4. Collation and Prioritisation of User Requirements

The sub-components from section 3 have been collated and are presented under two headings: 'essential' and 'desirable'. The definitions of requirements are assumed to refer to the overall Groupware solution which will be delivered for the University of Oxford (and will almost certainly include a core Groupware application suite plus add-ons). It is understood that the Groupware solution must have the *capability* to meet the specified requirements, and some will not be met in the initial installation.

Thee ordering of sub-components under each heading reflects the structure of section 3 and does not represent relative prioritisation.

Essential:-

i. Groupware Support: on-site expertise in system internals or support contract, and disaster recovery offered through service level agreement
ii. Groupware Scale: ability to scale all components of Groupware solution to scale[4] required by the University
iii. Groupware Legal: a solution must be chosen which meets the legal requirements of the University and is acceptable to users (for example with respect to whether data is held off-site)
iv. Groupware Architecture: a solution must be chosen which gives the same 'look-and-feel' across components within the Groupware solution
v. Email Scale[5]: ability to scale ultimately to 55,000 accounts, with 37,000 being live and 28,000 being typically active in any one day
vi. Email Logins: ability to cope ultimately with peak rates of over 1300 logins per minute
vii. Email Sessions:- ability to cope ultimately with over 15,000 concurrent sessions
viii. Email Standards: ability to use standards compliant IMAP software against the IMAP server; RFC compliant SMTP server for message submission; Support for GSSAPI/kerberos for Oxford SSO; Support for TLS/SSL in encrypting passwords/connections
ix. Email Support for Attachments: support for a variety of attachment types
x. Email Support for Shared Mail Folders: support for shared mail folders (with other group members etc.)
xi. Email Synchronise: ability to synchronise inbox with mobile devices (e.g. Windows mobile, syncML, BlackBerry, OpenSync, ActiveSync)
xii. Email Web Access: web access with full functionality
xiii. Email Address Book: ability to download a common address book and to interoperate with common email clients
xiv. Email Accounts: ability to manage accounts using a University wide solution which is common to other business processes

[4] The scale will vary with time. Initially, in October 2008, it will be for 'early adopters' and the expectation is the Groupware solution must be able to support c.2,000 – 3,000 users. In April 2008 the same functionality will need to scale to c. 15,000 users.
[5] Equivalent scale requirements will be needed for other components of the Groupware solution in due course, but these will be developed as part of the technical requirements. By October 2009, it is anticipated that 30,000 users will be supported.

xv. Calendar Multiple: ability to manage multiple calendars, to allow the user to (e.g.) keep administrative, research and social appointments separate

xvi. Calendar Reminders: ability to send reminders of events in the form of emails, SMS messages, or by pop-up

xvii. Calendar Visibility: ability to see calendars of other people alongside the user's own, or view public calendars such as public holidays or University events which are available in ICS format

xviii. Calendar Event Creation: support of repeating events, events spanning several days, timed or all day events, and repeating events

xix. Calendar Invitations: ability to send invitations to an event to other users; this includes individual internal users, external people (identified by email) and locally-defined groups

xx. Calendar Event Classification:- classification of events into private, visible to friends, and public; ability to say whether events are transparent, or block out time

xxi. Calendar – Use of Groups: associating calendars with groups of people and resources (groups will be managed dynamically by an Oxford Groups Store service)

xxii. Calendar Data Import/export: Sharing of calendar data with other software using common interchange formats and protocols; including iCalendar ICS format and the CalDav protocol; export of calendars in RSS Atom format

xxiii. Calendar Resource Booking: booking of resources, such as rooms, equipment or refreshments.; managed using the same calendar interface and scheduling system, so that colleagues' availability is shown alongside free meeting rooms

xxiv. Calendar Synchronisation: support for synchronisation with desktop applications, phones, PDAs and laptops using Palm, Symbian, Windows Mobile, Blackberry, Linux and MacOS software

xxv. Calendar/Email attachment: ability to make a calendar entry by clicking on an attachment in an email

xxvi. Contact List Autocomplete: ability to auto complete

xxvii. Contact List Nearest Search: ability to show nearest search results (and give multiple entries for an individual)

xxviii. Contact List Complete: ability to show full record with mouse hover over completed field

xxix. Contact List Medadata: ability to customise Metadata (should be able to contain: name, email address, phone number, department, collage affiliation, allow for multiple departments and collages)

xxx. Contact List Database: ability to be able to change structure of database, and still be able to work with old data.

xxxi. Contact List Mail-Merge: ability to be mail-merge compatible (export to word processor)

xxxii. Contact List Personal Contact: ability to create personal contact lists (external contacts)

xxxiii. Contact List Personal Mailing: ability to create personal mailing lists

xxxiv. Contact List Directory: ability to create a shared/group directory

xxxv. Contact List Proxy: ability to: give proxy access to personal directories (e.g. manager and PA)

xxxvi. Contact List Import/export: Import/export facility

xxxvii. Contact List Ex-Directory: Ex-directory facility

xxxviii. Mobile Access IMAP: IMAP functionality for connection to variety of mobile devices

xxxix. Mobile Access Full Functionality: for mobile solutions to offer full functionality from the groupware implementation will require third party interfaces (eg Intellisync and Blackberry Enterprise Server) and the Groupware solution must be compatible with this additional software

xl. Remote Access Cybercafe: ability to access full Groupware functionality when in a "cybercafe" type environment – *i.e.* one where the user has no control over the machine they are using; platform agnostic; no specialised plug-ins

xli. Remote Access Integration: ability to integrate fully with the desktop clients.

xlii. SIS Direct Access to Groupware: ability for students and staff to have *direct access* to Student Self-Service or OSS via the Groupware solution; this link/integration will not require the user to re-enter a username or password; for example, the student will be able to see his/her exam details, correspondence details, etc, in the Groupware solution, either through widgets, or integration into Calendar/email/address books. (at a minimum, this will be a hyperlink to the existing student self-service pages or staff OSS pages)

xliii. Data Encryption Email Verification: the Groupware solution should be capable of identifying to others that users are the author of an Email; verifying the sender of an Email; encrypting outgoing Email messages and attachments; decrypting incoming (encrypted) Email messages and attachments

xliv. Data Encryption Email: some users require the facility to send and receive confidential information securely and easily via Email – including attachments and documents; this should have different levels of sophistication, from simple transfers to full solutions for a small subset of users with stringent requirements

xlv. Data Encryption Documents: users require standard, straightforward and **secure** means of accessing, modifying, storing and transferring electronic documents and data; when working locally on files that are permanently stored locally; when working remotely on files which are stored locally; when working on files that are stored on a notebook computer that is used inside and/or outside OU; when transferring files between local and/or remote machines

xlvi. Shared Data Repository Standards: the Groupware solution must satisfy the standards to enable it to interoperate with a shared data repository which uses a common solution for defining groups

xlvii. IdM System Interface: the Groupware solution will need to consume (but not return any of) the following attributes from the Core User Directory (and other central repositories of information, such as the Groups Store) - Unique Identifier, First Name, Last Name, Email Address, Role[6], Groups[7]

xlviii. IdM System Dynamic Connection: data in the Groupware implementation will need to be updated on a regular basis, and will ideally be event-driven

xlix. IdM Systems Standards: the groupware solution will need to support one or more of the following technologies for data lookup or export -XML, Delimited text, LDAP

l. Technical Requirements Importing Users' Data: the Groupware solution must have a bulk process for importing and exporting essential users' data using well defined formats for migrations

li. Technical Requirements AA: the Groupware solution must integrate with an external authentication and authorisation service

lii. Technical Requirements Backup: it must be possible to backup and restore all data and at a granularity suitable for the common user requests (e.g. corrupted mailbox, accidentally deleted emails and folders,

[6] Note that the Role@Scope field is multi-valued. We hope to be using the eduPersonScopedAffiliation field as defined in the eduPerson object class specification at http://www.nmi-edit.org/eduPerson/internet2-mace-dir-eduperson-200312.html.

[7] The mechanism for recording groups has not yet been specified. It may be possible for the specification to be influenced by the chosen groupware solution.

Desirable:-

i. Calendar Event Management: creation, editing or deletion of events using web-based, desktop, or mobile clients; injection of events into the system by other software using an API in several languages or by a REST interface
ii. Calendar Synchronisation (2): two-way synchronisation by direct wired connection to a desktop, by network connection (including wireless), or by the mobile phone network (some methods may involve interaction with an intermediate software program)
iii. Contact List Similar: ability to do “Sounds like” search
iv. Contact List Search: ability to search on all fields
v. Shared Data Repository Access: must be accessible by all categories of users, and searchable
vi. Shared Data Repository Access Control: must offer access control to group sections (directories or sub-directories) of the repository (and the corresponding authentication) could be enabled either manually for specific users identified by means of an agreed ID and/or password or otherwise allocated dynamically from database information for much larger general groups of users
vii. Shared Data Repository Version Control: must allow version control, modification history
viii. Shared Data Repository Documents: must support - online lecture notes, tutorial problem sheets, other teaching materials and examination papers, online committee papers and working group reports, agendas and minutes; online documents for research collaborations, projects, grant proposals and conference/workshop organisation; online personal files and documents which would be accessible to the individual without the need for a laptop or memory stick when away from Oxford or other home base
ix. Shared Data Repository Remote: must have web access
x. Shared Data Repository Cross-Platform: must be cross-platform
xi. Shared Data Repository Private Space: a space to develop document before they are transferred to public spaces
xii. Shared Data Repository Group Communication: a tool to facilitate discussion about content in the shared document space
xiii. (There are further Technical Requirements for Priority 3 that are not listed here as this is primarily a user requirements document).

5. Conclusions

User requirements from the Groupware Panel have been defined and collated and put under the headings of ‘essential’ and ‘desirable’.

This concludes the work of the Groupware Requirements Panel.

Appendix A:

Groupware Requirements Panel - Unpacking the Requirements (24.01.08)

1. Email - Mark Norman

This summary is quite high level in places and extra granularity will be needed to pick out specific requirements. Some of the requirements listed here may be mandatory or desirable: with a few exceptions, these have not yet been indicated. Furthermore, the detail is inconsistent. For example, more detail has been included regarding scalability than for other factors. This is deliberate and unavoidable at this stage. Privacy, confidentiality and IPR requirements have not yet been included. Few requirements have been included regarding the associated Webmail application(s) as this is likely to be covered by the 'Remote Access' heading.

Our early-selected, and probably incomplete, requirements are as follows:-

Scale:

- Ability to scale (early) to 55,000 accounts, with 37,000 being live and 28,000 being typically active in any one day *[NOTE: this is at the scale of Herald or just above (i.e. Herald is 55, 35, 24 thousands respectively). We may need higher numbers than this if departments (and colleges?) join in with the groupware who are currently not using Herald*.]
- Ability to cope with peak rates of over 1300 logins per minute. [*NOTE: Typical of current Herald - do we need to raise the figure?*]
- Ability to cope with over 15,000 concurrent sessions [*NOTE: Ditto previous comment*]

General interoperability requirements:

- Ability to use standards compliant IMAP software against the IMAP server (i.e. a variety of common email clients)
- (Desirable) POP3 as an option.
- RFC compliant SMTP server for message submission
    - Authenticated remote submission
    - Unauthenticated submission from local network
- Support for GSSAPI/kerberos for our single sign on
- Support for TLS/SSL in encrypting passwords/connections
- Support for a variety of attachment types
- Support for shared mail folders (with other group members etc.)
- Ability to synchronise inbox with mobile devices (e.g. Windows mobile, syncML, BlackBerry, OpenSync, ActiveSync)

Webmail:

- Web interface for reading and sending mail
    - Must Work in standards-compliant and other common browsers

- Webmail application must have a range of functions (to be defined later) but typical of the leading/common current webmail clients
- Ability to interface with the common address book (web access)

General, regarding non-web access:

- Ability to download the common address book (email clients)
- (Desirable) Installable 'Groupware' client

System support:

- Either on-site expertise in system internals or support contract
  - e.g. to recover from mailstore corruption
- Disaster recovery service level agreement
  - Either from vendor or internal team running the service

Account management:

- Ability to manage accounts that works with the business process of University registration staff (i.e. user management must be done in harmony with accounts in other University systems)

2. Calendar & resource allocation – Sebastian Rahtz

The "OxCollab" calendar component provides an electronic diary for all staff and students at Oxford, with four major characteristics differentiating it from a paper-based system:

1. it has the ability to manage multiple calendars, to allow the user to (e.g.) keep administrative, research and social appointments separate
2. reminders of events are sent by the system in the form of emails, SMS messages, or by pop-up
3. the user can see the calendars of other people alongside their own, or view public calendars such as public holidays or university events
4. calendar data is managed in a form which permits synchronisation between multiple interfaces; for example, a web view, a desktop application, and a mobile device all see the same data

Diary events include repeating events, events spanning several days, and timed or all day events. These may be classified as hidden, private and public, which will determine whether other users can see what, and what data is shown. Events (such as a birthday) may also be marked as transparent, leaving the slot free for scheduling.

Meetings involving groups of people in Oxford can be created by interacting with dynamic groups provided by the groupstore service. This interaction may range from simply sending invitation emails to searching for possible dates when all participants are free. Participants external to Oxford can also receive invitations.

Single or multiple events can be created, edited, and deleted using web-based, desktop, or mobile clients; they can also be inserted into the system by other software using an API in several languages or by a REST interface.

Calendar data is available to other software using common interchange formats and protocols. This allows a user's calendar to be displayed in 3rd-party software.

A secondary form of collaboration involves booking of resources, such as rooms, equipment or refreshments. This is managed using the same calendar interface and scheduling system, so that colleagues' availability is show alongside free meeting rooms.

Technical notes:

- Mobile devices supported include phones, PDAs and laptops using Palm, Symbian, Windows Mobile, Blackberry, Linux and MacOS software. Synchronisation by direct wired connection to a desktop, by network connection (including Wireless) and by the mobile phone network are all allowed, although some involve interaction with an intermediate software program.
- the supported method for calendar interchange is the iCalendar ICS format and the CalDav protocol.
- calendars can be made available in RSS Atom format

3. Contact list – with the ability to search and auto complete - Nigel Rudgewick Brown

1. Auto complete
2. Nearest search results also shown (and give multiple entries for an individual)
3. “Sounds like” search
4. Searchable on all fields
5. Full record shows with mouse hover over completed field
6. Customisable Metadata (should be able to contain: name, email address, phone number, department, collage affiliation, allow for multiple departments and collages)
7. Be able to change structure of database, and still be able to work with old data.
8. Mail-merge compatible (export to word processor)
9. Personal contact lists (external contacts)
10. Personal mailing lists
11. Shared/group directory
12. Proxy access to personal directories (e.g. manager and PA)
13. Import/export facility
14. Ex-directory facility.

4. Remote access to Groupware environment/web interface - Pete Biggs

The primary use of any groupware solution in an office environment will be through locally installed programs – a totally web based solution will probably not provide sufficient integration for day-to-day usage. However, some form of remote access to the data held on the system will be required for people when away from Oxford, and the

benchmark for such situations should be a “cybercafe” type environment – *i.e.* one where the user has no control over the machine they are using.

Consequently, the web client should satisfy the following criteria:

- Platform agnostic: It should not require a specific browser or specific operating system in order to provide full functionality
- No plugins: You should not have to install anything on a vanilla browser in order to function – i.e. No flash, no java.

Conversely, the experience of the Oxford Webmail system (which was originally meant as a fallback, basic system, but has become the primary access for some) has shown that some people *prefer* to live in a web environment and these people should be catered for. So the web client should also be:

- Fully functional: You should not be “penalised” for using the web interface, and co-respondents should not be aware that that is your method of access
- Integrate fully with the desktop clients: You shouldn't have to chose one method of connection, and then stick to it for ever: You should be able to switch between the two environments, or indeed have both running at the same time, without any problems

In other words the web client must be suitable for both occasional and persistent users.

5. Interface within Groupware system which enables access to Student Information System self service tools to support business functional processes - Andy Cotgreave

Groupware requirements unpacking:
This document is SIS’ definition of the following Groupware Panel requirement:

Students and staff will have *direct access* to Student Self-Service or OSS via the Groupware solution. This link/integration will not require the user to re-enter a username or password.

By *direct access*, we mean:
At best, the student’s self-service information will be available within the groupware solution. For example, the student will be able to see his/her exam details, correspondence details, etc, in the Groupware solution, either through widgets, or integration into Calendar/email/address books.
At a minimum, this will be a hyperlink to the existing student self-service pages or staff OSS pages.

6. Mobile access to Groupware environment (e.g. from Blackberry) and reminders sent to mobile devices. Robert Taylor

Most mobile devices connect to email/groupware systems via IMAP; therefore any groupware solution for Oxford has to at least offer this functionality. Full calendar/email access depends on the implementation available from mobile phone manufacturers, especially push technology; however both Blackberry and Nokia offer server-based software that is compatible with a range of popular groupware systems available commercially. For example, on the server side Nokia Intellisync supports Exchange, Domino, Groupwise, IMAP, POP3 or XML – see: http://www.nokiaforbusiness.com/emea/intellisync/pdf/NokiaIntellisync_WirelessEmail_Datasheet_EMEA.pdf

Mobile platforms supported by this software are:

- Windows Mobile 2003; 2003SE; 5.0
- Symbian OS 8.0; 8.1; 9.1 (Nokia S60 3rd edition, UIQ 3rd edition)
- Palm OS 4.0 and higher
- SyncML DS 1.0, 1.1 and 1.2
- J2ME™ Feature phone (Nokia S40, Sony Ericsson)

Blackberry Enterprise Server on the other hand supports the three major players, Exchange, Domino and Groupwise, see: http://na.blackberry.com/eng/services/server/

It is unlikely that any groupware solution will support mobile phone systems without such a third party interface, but it seems that such support is readily available for all major mobile platforms. The cost of such additional software, while not great, would have to be factored into any University costings.

7. Data encryption - David Popplewell

1. Preamble.

Anecdotal evidence indicates that Oxford University users require the facility to send and receive confidential information via Email using up-to-date security measures. This information may include personal details, confidential documents and data, e.g. academic references, interview assessments, draft examination questions, research proposals, research data, finance data.

There is an equivalent need to be able to access, store, transfer and modify confidential electronic documents and files.

2. Email Requirements.

Users require standard, straightforward and **secure** means of:

a. Identifying to others that they are the author of an Email;
b. Verifying the sender of an Email;
c. Encrypting outgoing Email messages **and** attachments;
d. Decrypting incoming (encrypted) Email messages **and** attachments.

3. File/data storage Requirements.

Users require standard, straightforward and **secure** means of accessing, modifying, storing and transferring electronic documents and data:

a. When working locally on files that are permanently stored locally, i.e. working within OU on files which are permanently stored within OU;
b. When working remotely on files which are stored locally, i.e. working outside OU on files that are permanently stored within Oxford University;
c. When working on files that are stored on a notebook computer that is used inside and/or outside OU;
d. When transferring files between local and/or remote machines,

8. Document repository for shared use - Jo Ashbourn

Document Repository for Sharing Information between Groups: A document repository for sharing information between groups of users, whether students and tutors, researchers and their colleagues/collaborators or college/departmental administrative and service staff, has been identified as one of the 8 essential components needed in the primary groupware solution being considered for the University as part of the ICT Strategy Plan implementation. Such a document repository would clearly have a web interface and be cross-platform to enable ease of access from any location, particularly for when users might be away from Oxford (or their home institution) and even abroad.

The following are likely case examples of when such a document repository might be particularly useful and effective for collaborative communication and sharing of information between groups of researchers, tutors, students and other University staff both at Oxford and elsewhere:

- Online lecture notes, tutorial problem sheets, other teaching materials and examination papers (including current ones being drafted by examiners – these would have tightly restricted and secure access of course);
- Online committee papers and working group reports, agendas and minutes;
- Online documents for research collaborations, projects, grant proposals and conference/workshop organisation;
- Online personal files and documents which would be accessible to the individual without the need for a laptop or memory stick when away from Oxford or other home base.

Such a document repository would also circumvent the current limitation on document or file size when sending attachments by email using Herald. Very large digital images or video files, for example, could be placed in the repository with appropriate access control enabled.

Access control to group sections (directories or sub-directories) of the repository (and the corresponding authentication) could be enabled either manually for specific users identified by means of an agreed ID and/or password or otherwise allocated dynamically from database information for much larger general groups of users, whether everyone in the Oxford domain or some other determined sub-group of users (e.g. students by subject/year, all members of a department etc.)

If access to the repository should allow editing rights of documents there, then when a new document which is a revised version of an existing document is either created online or uploaded, a rolling version number should be created so that previous older versions would still be available for current reference and for archival purposes. File modification history lists could also be available. For consistency in online editing of such documents, appropriate word processing editors could be incorporated as part of the repository software. Documents should be searchable online within the repository spaces by authorised access users. There may also be issues of copyright and intellectual property rights for consideration when the repository is set up.

It would be useful to have private document space available in the repository associated with all group spaces so that users could store partial documents or other works in progress in this space until these have been completed. At that point the final document or file would be transferred into the shared group document space for access by other group members.

Lastly a group communication tool could be associated with the document repository to facilitate discussion about content in the shared document space.

9. Groupware solution - requirements to interoperate effectively with an IdM system - Adrian Parks / Beth Crutch

As we do not yet know the proposed solution for either the groupware solution or the IdM solution, we can't be too granular with the requirements, but we hope that the following will be of use.

We consider that the groupware solution will need to consume the following attributes from the Core User Directory (or other central repository of information):

- Unique Identifier (e.g. 2201112)
- First Name (e.g. Adrian)
- Last Name (e.g. Parks)
- Email Address (e.g. adrian.parks@oucs.ox.ac.uk)
- Role@Scope (e.g. staff@oucs)

(and perhaps some others, such as the Oxford SSO username).

We assume that this data will need to be updated on a regular basis, and will ideally be event-driven (i.e. when a change is made in an authoritative data source, this is immediately propagated via the Core User Directory and thence to the groupware database/directory service).

Note that the Role@Scope field is multi-valued. We hope to be using the eduPersonScopedAffiliation field as defined in the eduPerson object class specification at http://www.nmi-edit.org/eduPerson/internet2-mace-dir-eduperson-200312.html.

We have also assumed that the groupware solution will not be propagating attributes back to the Core User Directory (or other data sources in any proposed IdM solution), but will simply be consuming them.

Without having an agreed solution in place yet for the Core User Directory, it is difficult to say how these attributes will be presented to client systems. For example, it may be that an intermediary directory service/database would sit between the Core User Directory and the groupware solution. In any case it is a safe bet that whichever solution is finally implemented, it will support one or more of the following technologies for data lookup or export:

- XML
- Delimited text
- LDAP

The groupware solution will ideally support all three of these (but should support at least one), and also must be able to hold the unique person identifier and Role@Scope attributes (presumably either in existing defined fields or in custom fields added to the database/directory schema).

Based on the information we have from the status report, at this time we believe these to be the only requirements the groupware solution will need to support, in order to interoperate with the IdM system.

10. Technical requirements for the groupware system - of a more general technical and operational nature than specifically groupware, but which must clearly apply to any groupware solution - David Rischmiller

(Taken from : https://wiki.oucs.ox.ac.uk/oucs/groupware_technical_requirements)

Introduction

This wiki page sets out some of the technical issues that must be considered for any groupware solution (the system) in the context of it supporting at least 30,000 users. The issues do not relate directly to the functional requirements of the software but rather to general technical requirements of any significant network accessible software system that must operate with a high degree of resilience.

Technical Issues for Consideration

Integration with external data sources

The system must be capable of importing, as a bulk process, any data that is required from external sources. For example, the data that defines the Identities and Groups that the groupware system is to manage. Importation of the data must be possible during normal running of the service with the new data taking effect immediately the importation process has completed - system restarts must not be required.

Ability to import and export data from the system

- Importing users' data

1. There must be a bulk process that can be invoked for importing the essential data (to be defined) of users using other systems so as to facilitate the transition from existing systems to the new system. The data formats involved for importing data must be published.
2. What other data needs to be importable in bulk?

- Exporting users' data

There must be a bulk process available to permit all data (to be defined) pertaining to a user in the system to be exported in a well defined format. Without this capability, once a groupware solution is adopted, any considerations of changing to alternative software in the future may be severely hampered.

- Other Data Sources

We need to determine what other data sources will be required to input to the system. What data from the SIS is required to be imported into the system?

- General Considerations

There are two routes to importing data:

1. A programmatic interface driven either by software modules in the system importing required data via an API of the external data source, or the external data source using an API of the system to export data into the system.
2. A generalised data driven interface such as provided by a service oriented architecture (SOA) infrastructure.

We don't have an SOA infrastructure at the University so the only approach can be the programmatic one but the SOA approach is the way to avoid the data sharing requirements of n systems becoming an n**2 problem. (I think a proper consideration of the benefits of a SOA is now not well overdue but obviously not here and now).

System Performance Issues

1. Are any maintenance processes required to ensure data remains optimally organised to maximise efficiency and performance of the system?
2. Can such maintenance processes be carried out on a live system without disabling or noticeably affecting the perceived performance of user access?
3. If 'yes' to the previous question, is this the normal mode of operation of the system or are there implications for the system design (extra storage, processors, etc) to achieve this capability.

Hardware Requirements

1. What are the guidelines for calculating the hardware requirements (processor and storage) to support the required number of users?
2. What hardware and software configuration options are available for the provision of resilience to failure of components of the system?

3. Is the system fully supported in a virtual environment? Which type of virtual environment?
4. What are the guidelines for determining the limits on concurrency of users connected to the system?
5. What characteristics of the system design affect the maximum rate of connection and disconnection of users to and from the system?

Authentication and Authorisation

1. Is the system capable of integrating with an external authentication and authorisation service?
2. Is the ability to integrate a standard part of the system?

Backup and Restore

Details of the backup and restore process must be well defined.

2. Is data backup a monolithic or modular process?
3. Can the backup and restore process be integrated into the IBM Tivoli Storage Management system?
4. What performance can be expected from the backup process?
5. Can individual mailboxes, calendars and other data be simply and speedily restored?
6. How much control, if any, is there for the user to control the restore process?