

Enhancing Awareness and Coordination through Subscriptions

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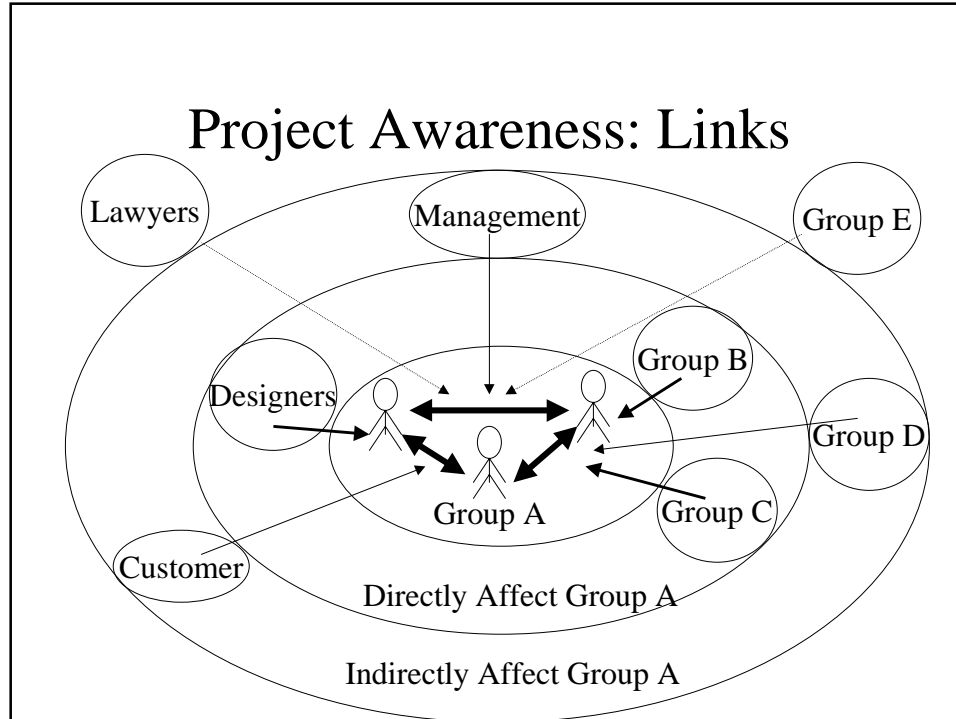
- **Coordination is a key part of any task involving people**
- Communication and coordination are among the key problems faced in large software projects (Curtis, Krasner & Iscoe).
- Improve coordination through awareness of ones coworkers:
 - Physical tasks
 - On-line tasks
 - Projects
- How can one provide the kind of awareness to on-line tasks and projects that is inherent to most physical tasks?

Outline

- Project Awareness
- How can “Push Technology” improve awareness?
- Web based Knowledge Depot
- Lotus Notes Knowledge Depot
- Other Push tools supporting awareness
- Conclusions

Project Awareness

- Awareness between groups of a project to enable them to better coordinate their work.
- Communication links between groups, preferably automated links that require no extra work to maintain.
- Strength of each link depends upon relevance of each group.



- ### Awareness of What?
- Changes to component's design or interface
 - Changes to completion dates
 - Changes to higher level design
 - Changes to management
 - Changes to customer requirements
 - **The knowledge that the above changes are being discussed**
 - **The concerns that lead to the discussions**

Common Approaches to Providing Project Awareness

- Common techniques for project awareness have severe limitations
 - Email
 - Broadcast
 - Selective
 - Mailing Lists
 - Posting information
 - Bboard
 - WWW
 - Meetings and personal interactions

Defining Push Technology

- Any tool that presents reports of new or modified information to many users, rather than requiring users to constantly check for themselves for new information.
- Users specify what types of information they are interested in
- Tool pushes either
 - events as they occur, or
 - reports of all events over a time period

Subscriptions

- Users specify subscriptions to information relevant to their work:
 - Simple form based preferences
 - Keyword Filters
 - Database Queries and formulas
- Users specify priorities for information:
 - Frequency
 - Interface
 - Urgency

Knowledge Depot as a Group Memory

- Knowledge Depot captures email and documents sent to the system or sent to work groups.
- Automatically categorizes information, and recategorizes as users redefine categories over time.
- Enables retrieval of design rationale, and other historical and archived information.

Knowledge Depot as a Push Technology

- Users subscribe to categories of information and specify frequency.
- Depot pushes periodic reports of all new information to arrive in categories.
- Users maintain awareness of topics of work that affect their own work

The screenshot displays the Knowledge Depot web interface. At the top, there are navigation links: Depot List, Categories, Feedback, Edit Password, Edit Account, and Compose. Below these, there are sub-links: Empty Trash and Address List. A search bar with 'Run Query' is present.

The main content area is titled 'eden Category Browser'. It features a tree view of categories with expandable arrows and links to 'Archive', 'Distribution List', '(To)software', '(To)edcs', '(From)shene', '(From)taylor', 'Quarterly Report, Q/R, Report', 'Meeting, Agenda', 'Demo, Booth', 'FYI', 'APL', 'Interate, Integrator', 'Esper, Flier, Present, Talk, conference', 'Toedcs-local', 'Milestone, Criteria', 'Endeavor', and 'Register, Registration'. Each category has a small 'S O E D C' icon next to it.

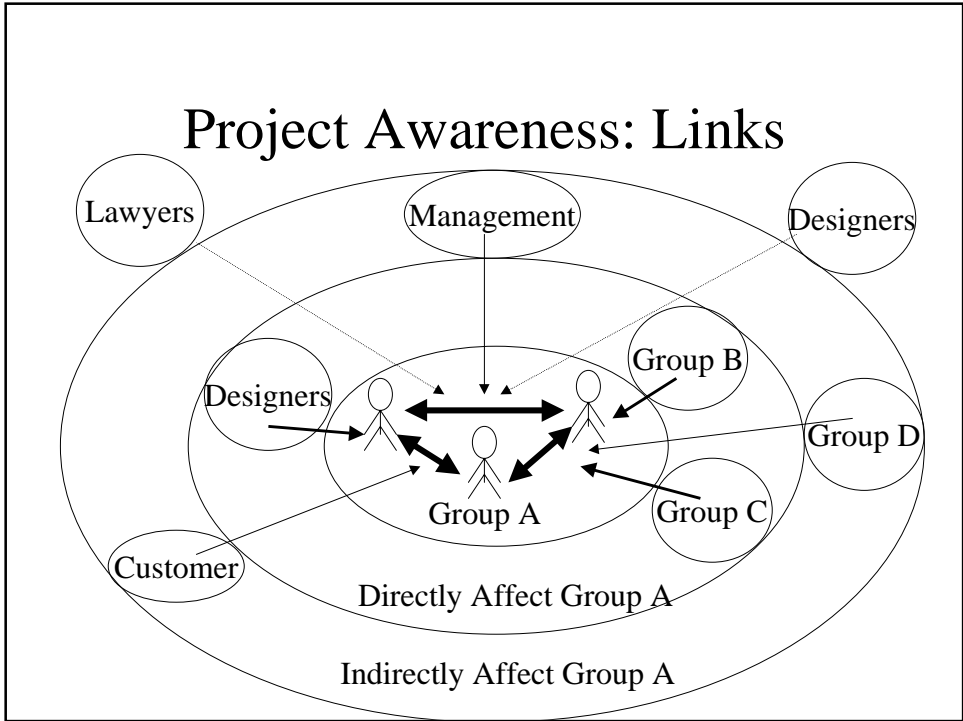
Below the category browser is an 'Edit Subscription' form. It includes fields for 'Select Category' (set to 'Quarterly Report, Q/R, Report'), 'Select Grouping', 'Enter interval between receiving subscriptions' (set to 7), and 'Enter the level of detail' (set to 5). There are 'Save' and 'Reset' buttons at the bottom of the form.

On the right side, there is a list of email messages. Each entry includes a date, a sender email address, and a subject line. The messages are:

- 2/10/1998 kari@etoile.ics.uci.edu 4th QR Draft
- 2/10/1998 taylor@ics.uci.edu Accomplishment Reports (again)
- 1/19/1998 kari@etoile.ics.uci.edu EDCS 4th QR and Annual Technical Report
- 12/30/1997 kari@etoile.ics.uci.edu 4th EDCS Quarterly Report and Annual Report
- 11/12/1997 kari@etoile.ics.uci.edu Remember, the deadline is 1/10/1998!
- 11/12/1997 kari@etoile.ics.uci.edu 3rd QR ready for review
- 10/6/1997 taylor@ics.uci.edu Progress reports for the recent quarter

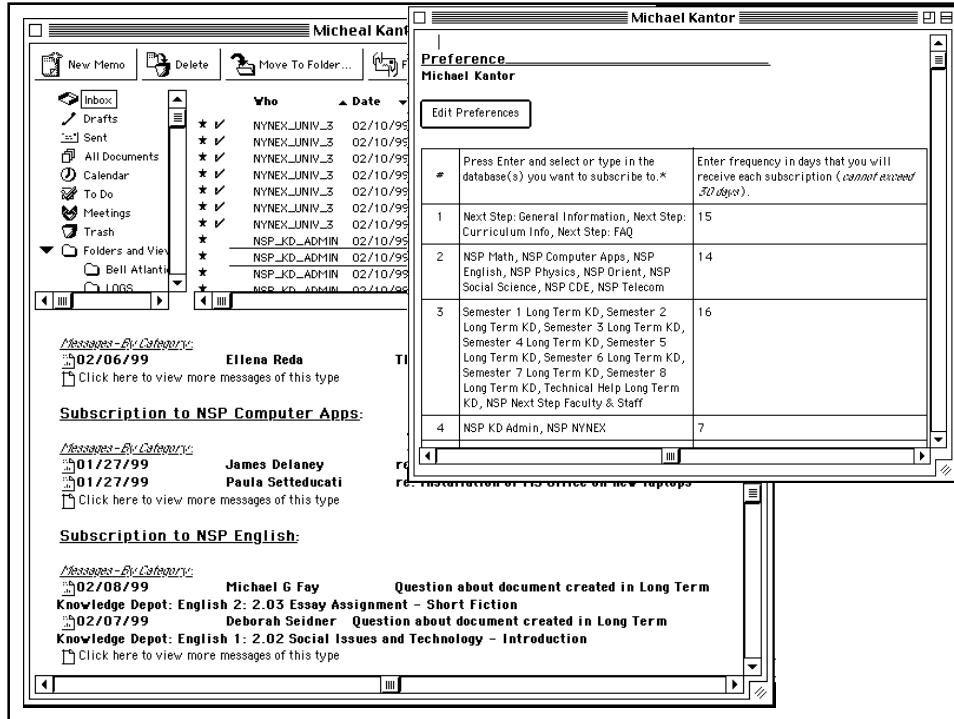
Below the email list is a preview of an email. The header shows 'From: kari@etoile.ics.uci.edu' and 'To: edcs-local@etoile.ics.uci.edu'. The subject is '4th EDCS Quarterly Report and Annual Report' and the date is 'Tue Dec 30 12:54:29 PST 1997'. The body of the email starts with 'Hi Everyone,' and contains a reminder about the next quarterly report and a request for information.

Project Awareness: Links



Lotus Notes Knowledge Depot

	Date	Who	Subject
★			Plans for Next Step; From:Jon Abeles; From:James M. Daly Jr; To:Jon Abeles; To:James M. Daly Jr
★			Question about
★			Release procedure; release notes; release note
★			Released Documents; (RD)
★			replica
★			Schedule feature; Scheduler; schedules; dalydirect
★			Subscription feature; (SUBSC); KDSUBSC Status Report
★			---- Definition --
★	12/31/97	Beatrix Zimmerman	Subscription feature & visit to S&T
★	01/21/98	Beatrix Zimmerman	Re: Subscription feature :BUG #1/Access to Prog Coord DB
★	01/23/98	Beatrix Zimmerman	Re: Subscription feature :BUG #1/Access to Prog Coord DB
★	01/26/98	Beatrix Zimmerman	Re: Subscription feature :BUG #1/Access to Prog Coord DB
★	01/28/98	Beatrix Zimmerman	Subscription feature for you
★	01/29/98	James M. Daly Jr	Re: Subscription feature for you
★	01/29/98	Beatrix Zimmerman	Re: Subscription feature for you
★	01/30/98	Beatrix Zimmerman	Re: Subscription feature announcement!!!
★	03/24/98	Beatrix Zimmerman	Subscription feature ...
★	09/10/98	Michael Kantor	Subscription feature TODO list
★	01/26/99	NSP_KD_ADMIN	KDSUBSC Status Report: OK
★	01/26/99	NSP_KD_ADMIN	KDSUBSC Status Report: OK
★	01/26/99	NSP_KD_ADMIN	KDSUBSC Status Report: OK
★	01/26/99	NSP_KD_ADMIN	KDSUBSC Status Report: OK



Project Awareness by Monitoring Intranet

- Users can subscribe to any database within their Notes environment. They can monitor any type of information that is handled on-line:
 - New Information: purchases, timesheets, customers, coworkers, policies, etc...
 - New Communications: bug and status reports, FAQs, email, news letters, etc...
 - Modified Information: changes to calendars, Documents, prices lists, etc...

Study (295 survey responses)

- Pros
 - Users who read messages reported feeling more aware than those who did not.
 - Many users found and retrieved new information that they might not have otherwise found.
 - 69% reported learning
 - 51% followed links.
- Cons
 - Many users did not read the email. (13% of those who read and responded to the survey email)
 - Users were unwilling to figure out how to change default subscriptions, even when they never read any of the reports.

Automating Awareness through Push Technology

- Effort vs.. automation: Leverage existing work. Increases perceived benefit/cost.
 - Leverage existing work and work practices
 - Leverage existing interfaces (email, pagers, web)

Related Work

- Elvin/Tickertape
 - Any tool can call Elvin's API to push information to those who register an interest. A program can monitor any source on internet or intranet and inform Elvin of findings.
- Verity's IntelliServ
 - Monitors file and web servers, Lotus Notes and MS Exchange databases, and other information sources

Conclusions

- Push Technologies have the potential to increase awareness within groups, projects and organizations.
- Its primary advantage over other approaches is that it minimizes the effort users must invest in becoming aware.

Knowledge Depot Depot List **Categories** Feedback Edit Password Edit Account Compose

Empty Trash Address List

Help on Queries Run Query

icsnews Category Browser

Archive S Q C

(To)uci marketplace S Q

(To)ics.usenet S Q E D

(To)ics.views S Q E D C

(To)ics.fundopp S Q E D

(To)ics.general S Q E D

(To)ics.mac,(To)uci.mac S Q E D

(To)ics.jobs S Q E D C

(To)ics.system S Q E D

(To)ics.software S Q E

(To)ics.announce S Q E

(To)ics.corps S Q E D C

(To)ics.grad S Q E D C

Trash S Q C

Subscriptions to icsnews

Create Subscription

Path to Category	Name of subscription grouping	Interval	Level of Detail in Subscriptions
Delete Edit Archive / (To)ics.grad	Database	Every 3 days	Headers Only
Delete Edit Archive / (To)ics.software	bboard	Every 3 days	Full Message
Delete Edit Archive / (To)ics.corps	bboard	Every 3 days	Full Message
Delete Edit Archive / (To)uci.marketplace	minor bboard	Every 7 days	First 5 lines
Delete Edit Archive / (To)ics.fundopp	minor bboard	Every 7 days	First 5 lines
Delete Edit Archive / (To)ics.jobs	minor bboard	Every 8 days	First 5 lines
Delete Edit Archive / (To)ics.mac,(To)uci.mac	minor bboard	Every 7 days	First 5 lines

Subscriptions to kdepot

Create Subscription

Edit Subscription

Select Category: (To)uci.marketplace

Select Grouping (or enter a new grouping): minor bboard minor bboard

Enter interval between receiving subscriptions: 7 Report every X days

Enter the level of detail: 5 Report contains first X lines of the message

[Save](#) [Reset](#)