

PlaceWare: From Research to Product to Service to Tomorrow



Pavel Curtis
22 June 2003

Workshop on Advanced Collaboration Environments

Overview



- Before PlaceWare: the Xerox PARC years
 - Jupiter and the Network Places project
- PlaceWare's birth and early life
 - PlaceWare Development Kit
 - PlaceWare Auditorium 1.0
 - PlaceWare Conference Center 2.0 – 3.5
- PlaceWare as a service company
 - Conference Center 2000
 - Conference Center 5.0 (coming this fall)
- PlaceWare: a wholly owned subsidiary of Microsoft
 - The Real-time Collaboration Business Unit
 - A Vision for the Future

Before PlaceWare: Jupiter



- Xerox PARC, 1992 to 1995
- “LambdaMOO for professionals”
 - Text insufficient for real-time communication
 - Where’s the GUI?
- Eventually used by ~100 people within PARC, Xerox

Before PlaceWare: Jupiter



Jupiter: mike

Configure | Comm | Who | Postit | browser | --- | Objects | Home | Help | Quit Jupiter

You are carrying	Objects here	Look:	Jupiter Lab
<ul style="list-style-type: none"> mike's text editor (#780) monitor (#3407) mttest (#3194) notes (#3258) old calculator (#1505) Operation adjustments (#2...) Postit Reply Pad (#3989) Postit Reply Pad (#4110) Postit: browser traceback (#... Postit: copy command (#34... Postit: create vs. console (...) Postit: Docs for WindowC... Postit: fix media_utils verb... Postit: handle_reused_del... Postit: Layout bug in prop... Postit: maininput typescrip... Postit: new screen snaps (...) Postit: overlaid strokedit... Postit: science for little kid... 	<ul style="list-style-type: none"> ip folder (#2257) junk box (#3922) Jupiter Lab's closet (#3959) Jupiter notebook (#2289) nwthing vending machine (#... Recycling bin (#1030) Set Game Table (#479) Tape Recorder (#396) testboard (#3988) Wednesdays on Jupiter (#1... whiteboard (#1055) window system docs (#227... wthing widgets (#431) MikeDixon* Nichols* Pavel* RonF 	<p>A work place for the Network Places project. Feel free to browse around.</p> <p>PC has disconnected. > :gets ready to take a screen snap [Fri Sep 22 16:37] mike gets ready to take a screen snap > "smile, everybody!" You say, "smile, everybody!" ></p>	<p><i>Exits</i></p> <ul style="list-style-type: none"> CSL hallway Jupiter cartography center Jupiter hallway

Postit: two tasks...

Wed Sep 20 14:07:39 1995 PDT

Reply to All | Reply to Sender | Discard | Store

From: Nichols*

Subject: two tasks...

To: mike

create button (don't forget to give it to everyone that already has a communicator and has an open slot).

put a bound on editor state size.

Who

Double-click on a user's name to join that user. | Close Window

User name	Connected	Idle time *	Location
Lamping (#320)	6 hours	active	Lamping's Office (#321)
Wyatt* (#163)	6 hours	active	Wyatt's Office (#271)
Krivacic (#308)	6 hours	active	Nichols' office (#115)
Nichols* (#2)	22 hours	active	Jupiter Lab (#376)
chiba (#1369)	a day	active	chiba's Office (#1370)
MikeDixon* (#606)	a day	active	Jupiter Lab (#376)
mike (#594)	2 days	active	Jupiter Lab (#376)
Verber (#865)	2 days	active	Spreitzer's Office (#199)
Vicki (#3548)	2 days	active	Vicki's Office (#3547)
Shirley (#354)	8 minutes	7 minutes	Shirley's Office (#83)
resch (#2078)	a day	16 minutes	resch's Office (#2079)
SAnderson (#1919)	2 hours	43 minutes	WPC Lab (#2351)
RBruce (#1687)	6 hours	48 minutes	Dialog Room (#1882)
Annette (#556)	a day	53 minutes	Planet Cafe (#2247)
JackDolan (#2686)	a day	2 hours	JackDolan's Office (#2476)

Total: 20 currently-connected users.

communicator

Push to talk | Audio | Video | Configure | Help | Close






:MikeDixon*

Before PlaceWare: Jupiter



Jupiter: mike

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chiba (#1369)	a day	active	chiba's Office (#1370)
MikeDixon* (#606)	a day	active	Jupiter Lab (#376)
mike (#594)	2 days	active	Jupiter Lab (#376)
Verber (#865)	2 days	active	Spreitzer's Office (#199)
Vicki (#3548)	2 days	active	Vicki's Office (#3547)
Shirley (#354)	8 minutes	7 minutes	Shirley's Office (#83)
resch (#2078)	a day	16 minutes	resch's Office (#2079)
SAnderson (#1919)	2 hours	43 minutes	WPC Lab (#2351)
RBruce (#1687)	6 hours	48 minutes	Dialog Room (#1882)
Annette (#556)	a day	53 minutes	Planet Cafe (#2247)
JackDolan (#2686)	a day	2 hours	JackDolan's Office (#2476)

Total: 20 currently-connected users.

communicator

Push to talk | Audio | Video | Configure | Help | Close






:MikeDixon*

Before PlaceWare: Jupiter



Console:communicator

Push to talk  Configure devices  Close

 v: Pavel	 v: RonF		
 a: Nichols			 : Anurag
			

Before PlaceWare: Jupiter



Who

Double-click on a user's name to join that user.



Close Window

User name	Connected	Idle time *	Location
Lamping (#320)	6 hours	active	Lamping's Office (#321)
Wyatt* (#163)	6 hours	active	Wyatt's Office (#271)
Krivacic (#308)	6 hours	active	Nichols' office (#115)
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Before PlaceWare: Jupiter



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put a bound on editor state size.

Before PlaceWare: Jupiter



Connected users

Click on a user's name to join that user.

User name	Connected	Idle time *	Location
mike (#594)	an hour	active	MikeDixon's Office
MikeDixon* (#606)	an hour	active	MikeDixon's Office
Krivacic (#308)	an hour	active	Krivacic's Office
RonF (#101)	an hour	active	Jupiter Lab
Markus (#764)	an hour	3 minutes	Markus's Office
Erik* (#806)	an hour	3 minutes	long hallway
Dourish (#560)	an hour	6 minutes	Jupiter Lab
D'Alfonso (#196)	22 minutes	6 minutes	Jim's Room (#105)
Kerch (#208)	an hour	8 minutes	Jupiter Lab
Lamping (#320)	an hour	9 minutes	Lamping's Office
Sam (#1072)	an hour	18 minutes	Sam's Office
Angie (#791)	an hour	22 minutes	Angie's Office
Gregor (#754)	an hour	25 minutes	CSL tea area
Mimi (#723)	an hour	33 minutes	Mimi's Office
FAXowner (#1305)	an hour	44 minutes	CSL (#105)

Total: 17 currently-connected users.

Communicator

Press to talk: MikeDixon's Office sending Update

mike			

Jupiter (mike)

Help Who Home Video

Speaker Volume: 56 Microphone Volume: 24

Mute Speaker Press to Talk Mute Microphone

MikeDixon's Office	Exits from this room	Users in this room	Objects in this room
You are in the office of Mike Dixon. You can type 'out' to leave.	SPL Strategy & Innovation Jupiter Lab		generic hierarchy browser lock prototype (#626) Busy Box (#625) Video Viewer (#941)

Copying Screen...

```
> e me
> e $nothing:close_all_windows
> open com
[Fri Aug 19 12:06]
Jupiter Lab
> open wb
Unrecognized command.
-- Opening whiteboard (#1055) ...
> home
You go home.
MikeDixon's Office
Dourish goes down.
RonF goes down.
Jupiter Lab
-- Opening whiteboard (#1055) ...
[Fri Aug 19 12:08]
-- Opening Wednesdays on Jupiter (#1245) ...
-- Opening Tape Recorder (#396) ...
> ,#2.moveto(here)
=> 0
[used 1009 ticks, 1 second.]
[Fri Aug 19 12:15]
RonF goes out.
RonF has arrived.
RonF shows Map of Monroe County to you.
> home
[Fri Aug 19 12:18]
You go home.
MikeDixon's Office
>
```

Before PlaceWare: Jupiter



The screenshot displays the Jupiter virtual environment interface with several windows:

- Wednesdays on Jupiter:** A window with a hand-drawn title "WEDNESDAYS on JUPITER" and two speech bubbles saying "Kinda short!" and "Kinda cold!".
- Jupiter meeting, 9 May 1994:** A media player window with controls for Play, Stop, Fast Forward, and Rewind. It shows a search increment of 1 and a time clutch factor of 180. The progress bar is at 29.
- Events:** A list of events including "Mike's status report", "Discussion of Gopher Browser", "How much state should the window syst", "Berry's status report", "Camera issues", and "Ron arrives".
- Jupiter (mike):** A control panel with "Speaker Volume" at 56 and "Microphone Volume" at 24. It includes "Mute Speaker" and "Mute Microphone" options. Below are sections for "Jupiter Lab" (description: "A work place for the Social Virtual Reality project..."), "Exits from this room" (CSL), "Users in this room" (Kerch, Dourish, Nichols*, RonF), and "Objects in this room" (mini client (#408), calculator (#648), Tape Recorder (#396), generics cabinet (#43), Jupiter notebook (#65), junk box (#857), Stroke tester (#1018)).
- whiteboard:** A drawing application window showing a floor plan diagram with labels "divider" and "table". It includes a toolbar with drawing tools and a "Notes" section with the text: "Clearly you want not to need the labels. Different objects/people should be recognizable as such." Below the notes is a "Text entry:" field.
- Communication:** A window titled "Jupiter Lab" with a "Press to talk" button and a video grid showing participants: mike, RonF, and Nichols. Below the video grid are buttons for Kerch and Dourish.
- User List:** A vertical list of user names and IDs, including Erik* (#806), mike (#594), MikeDixon* (#764), Markus (#764), RonF (#101), Dourish (#56), D'Alfonso (#208), Lamping (#32), Sam (#1072), Angie (#791), Gregor (#754), Mimi (#723), FAXowner (#1), and Nichols* (#2). The total count is "Total: 17 current".

Before PlaceWare: Jupiter



The screenshot displays the Jupiter interface with several components:

- Top Bar:** Includes a "Dismiss" button, and menu items for "Help", "Who", "Home", and "Video".
- Speaker Volume:** A control bar showing a volume level of 56.
- Mic:** A control bar showing a microphone level of 24.
- Jupiter Lab:** A section titled "Jupiter Lab" with the text "A work place for the Social Virtual Reality project. Feel free to browse".
- Chat Window:** A window titled "PostIt from Lamping" with a "Dismiss" button. It contains the text: "Reply to All", "Reply to Sender", "From: Lamping", "To: mike", and "Can you come help me with a MatLab question?".
- Whiteboard:** A window titled "Some Ideas, with a Bad UI" containing a drawing area with blue circles and a red line. A label "whiteboard" points to the drawing area.
- Other Elements:** A date "9 May 1994", a "Clutch Factor" slider at 180, and a "Quit" button are also visible.

Before PlaceWare: Jupiter



Jupiter (mike)
 Snap Delay: 0 2 4
 Beep
 Hide W

 Copying Screen...
 Gopher Browser (#13
 xterm (#1348)

shell

```

0.2221 -0.2653 -0.3761
-0.4887 0.5744 0.8658
0.2666 -0.3091 -0.4890

>> [Lamping] b*b
b*b

ans =

1.0e+16 *

1.3054 1.3291 1.3491
0.8092 0.8239 0.8363
0.2000 0.2036 0.2067

>> dmpem(b)
dmpem(b)

ans =

1 2 3

>>
        
```

Gopher Browser

gphre (menu) About Dog-Eared Pages Census Publication Index

UNC's Legal Disclaimer Dictionaries and Thesari (menu) Census Telephone Numbers

Net! - Archie, Libraries, G Search - List of Lists (search) Census data for U.S. from U of Mis

Dog-Eared Pages (Frequ 1990 Census (not recommended fo Guides to Census on CD-ROM (r

of SunSITE -- by Subject ACADEME THIS WEEK (menu) ICPSR Census Holdings (menu)

crossystems News Groups Digital Information Infrastructure G Metropolitan Area Population, 1992

(News, Entertainment, W Economics (menu) Michigan: State, Counties, Cities, e

ormation Exchange (Peopl Electronic Books (menu) Population Estimates for U.S. Coun

C-CH Internet Library (me Guides to the Internet (menu) United States summaries (menu)

Gopherspace (menu) InterNIC Directory and Database S

what's New on SunSITE (menu) Maps of the Matrix (FidoNet, UUC

Click on a user's name

User name	Connected
Erik* (#806)	an hour
MikeDixon* (#606)	a day
mike (#594)	2 days
Lamping (#320)	2 days
Dourish (#560)	2 days
Angie (#791)	2 days
FAXowner (#1305)	2 days
Nichols* (#2)	2 days
Ralph (#745)	2 days

Communications

Press to talk **Lamping's Office**

mike	
Lamping	

Postit from Lamping

Reply to All Reply to Sender Dismiss

From: Lamping
To: mike

Can you come help me with a MatLab question?

Population Estimates for U.S. Counties, 1990-92 (UMo-SL)

POPULATION ESTIMATES FOR COUNTIES IN THE UNITED STATES
1990-1992

FIPCO	AREA NAME	ESTIMATES	
		1990	1992
00000	UNITED STATES	248709873	252136667
00000	Northeast	50809229	50969714
00000	Midwest	59668632	60180414
00000	South	95445999	96888229
00000	West	95445999	96888229
00000	New England		
00000	Middle Atlantic		
00000	East North Central		
00000	West North Central		
00000	South Atlantic		
00000	East South Central		
00000	West South Central		
00000	Mountain		
00000	Pacific		
01000	Alabama		
01001	Autauga County		

Before PlaceWare: Network Places



- Network Places
 - What was Jupiter an example of?
 - What made us think “places” were an key concept?
 - Broader, more general vision
- Jupiter was cool, but limited
 - Single, central server
 - MOO programming model
 - Hard to set up both server and client
- Sometimes a barrier is really a doorway...
 - Xerox refuses to allow release of Jupiter
 - So why start work on a follow-on system?

The Birth of PlaceWare



- The idea begins to take shape - September, 1995
- Infrastructure building begins – January, 1996
 - Market analysis and funding search, too...
- PlaceWare is incorporated – November, 1996

Early PlaceWare: Finding a Product



- We know live collaboration is cool, but...
- Scaling back a vision
 - A platform for website collaboration?
 - You can't sell a platform nobody understands the need for
 - The ultimate technical-support website?
 - “Come back in six or seven years, OK?”
 - A consumer-oriented chat system?
 - Where's the business model?
 - An auditorium?
 - Where's the collaboration?
 - At least they seem to understand it...

Early PlaceWare: Auditorium 1.0



Netscape - [PlaceWare Auditorium]

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Images Open Print Find Stop

Location: <http://www.placeware.com/pwplaces/auditorium.html>



PLACEWARE

Lobby

Auditorium

3 People here

IN THE AUDIENCE

PLACEWARE

YOUR ROW You are seated in Section B, Row 1 (seat 6)

Guest (833)
Guest (842)
Pavel

How's the pace?
wait! slower OK go skip this!

1-on-1 Mute

Change Row Set Name

Hold to talk Set Audio Levels

Guest (843) enters Section B, Row 1.
Guest (843) changes name to Pavel.
Randy Boyer leaves Section B, Row 1.

Send

ON STAGE

PLACEWARE

In the Audience

Slide: 33 of 95



Presented By Mike Dixon

Mute

◆ If you do not want to be bothered by another member of the Audience you can MUTE them.

Mute



Ask Question

Review Slides

When the teacher...
PlaceWare Presenter: By simply highlighting the person's name and pressing the 1-on-1 button, you can hold a private conversation with anyone else in your row. A box will pop up for your conversation.
PlaceWare Presenter: Now, by a simple yes or no answer, let me know if YOU prefer Private Chat to Row Chat.
PlaceWare Presenter: You can mute any member of your row who is bothering you.

Download our [PlaceWare Audio Client!](#)

Need a hand?

Early PlaceWare: Auditorium 1.0



PlaceWare Auditorium: Question Manager

Raised Hands (1) Submitted Questions (1)

Unscreened (1) Screened (0)

Questions (Shift-click and Ctrl-click to select multiple)

Does this thing really work?

Question submitted by Pavel

Does this thing really work?

Answer

Yup!

Forward to Presenter Reject Question Post to Audience

Java Applet Window



What do you think about the ability to change seat color?

- a) It's a valuable tool for the presenter.
- b) It's fun, but I can't see a useful purpose.
- c) Adds nothing to the event
- d) I couldn't figure out how to do it.

Early PlaceWare: Auditorium 1.0



IN THE AUDIENCE PLACEWARE

YOUR ROW

You are seated in Section B, Row 1 (seat 6)

-
-
Guest (833)
Guest (842)
-
Pavel

How's the pace?

wait! slower OK go skip this!

Change Row Set Name

Set Audio Levels

Hold to talk

Guest (843) enters Section B, Row 1.
Guest (843) changes name to Pavel.
Randy Boyer leaves Section B, Row 1.

Send

Early PlaceWare: Auditorium 1.0



- Released June, 1997
- A very slow seller
- The difference between software and shelfware
- Audio insights

Early PlaceWare: Conference Center



- Much larger slide size
- Web-page slides
- Session recording
- Telephony integration
- ~100% firewall traversal
- Multiple places
- Multiple kinds of place (auditorium vs. meeting)
- Application demoing (aka screen sharing)

PlaceWare as a Service: Why?



- Still a very long sales cycle
 - Must satisfy IT group, even for small trials
- Start setting up trial installations on our own server
 - Speeding up the sales cycle
- Professional online event management
- We know much more about how to run these servers
- Products need simple installers
 - How to add a database for scheduling, users, reports, etc?

PlaceWare as a Service: More Progress



- Conference Center 2000
 - Places created on demand
 - Scheduling meetings
 - Managing recordings
 - Easier navigation
 - XML-based APIs for scheduling, etc.
 - Two-way application sharing
 - Full, movie-style recordings
- Sales finally start picking up well
 - Competitors are useful
 - 9/11, India vs. Pakistan, SARS
- Going public requires good timing...

Conference Center 5.0



- Native Windows client
- Greatly enhanced load-balancing, failover support

What Is Significant About Release 5.0?

- Lowers the barriers of virtual communication
 - Completely redesigned to improve ease of use
 - New navigational and design elements to perform tasks quickly
 - Color coded areas
 - Options displayed based on user privileges
 - Keyboard shortcuts to substantially reduce time to perform tasks
 - Follows established conventions for Windows applications
 - Rollover help for buttons
 - Right-click for context sensitive menus
 - Standard File/Edit/View menus
 - Requires less training for presenters and attendees

Attendees: 4 | Not Recording | No Questions

PlaceWare's Sudden Endgame?



- Microsoft comes calling - September, 2002
 - Not a complete surprise, but still...
 - One way or the other...
- “What would you do with unlimited resources?”
 - “And, not or!”
- Engineering time estimates
 - “What’s new, Pavel?”
- Deal announced January 21, completed April 30
- Offers and Relocation

What was Microsoft Thinking?



- Anoop Gupta
 - From Stanford to VXtreme to Microsoft Research
 - Long-time researcher in, and advocate for, RT collaboration
 - Technical Assistant to the Chairman

Information Worker

Communicate

- Email and calendaring,
- IM, RTC
- Tele-presentation
- Publish

Absorb

- Reading
- Annotating
- Analysis

Participate

- Take action
- Biz process integration



Collaborate

- Meetings
- Info sharing
- Customized to team needs
- Simple access
- Protecting

Access

- Information
- People
- Subscribe

Author

- Keyboard
- Voice
- Pen
- Structured docs
- Notes
- Indexing
- Categorizing

The RTC Vision:

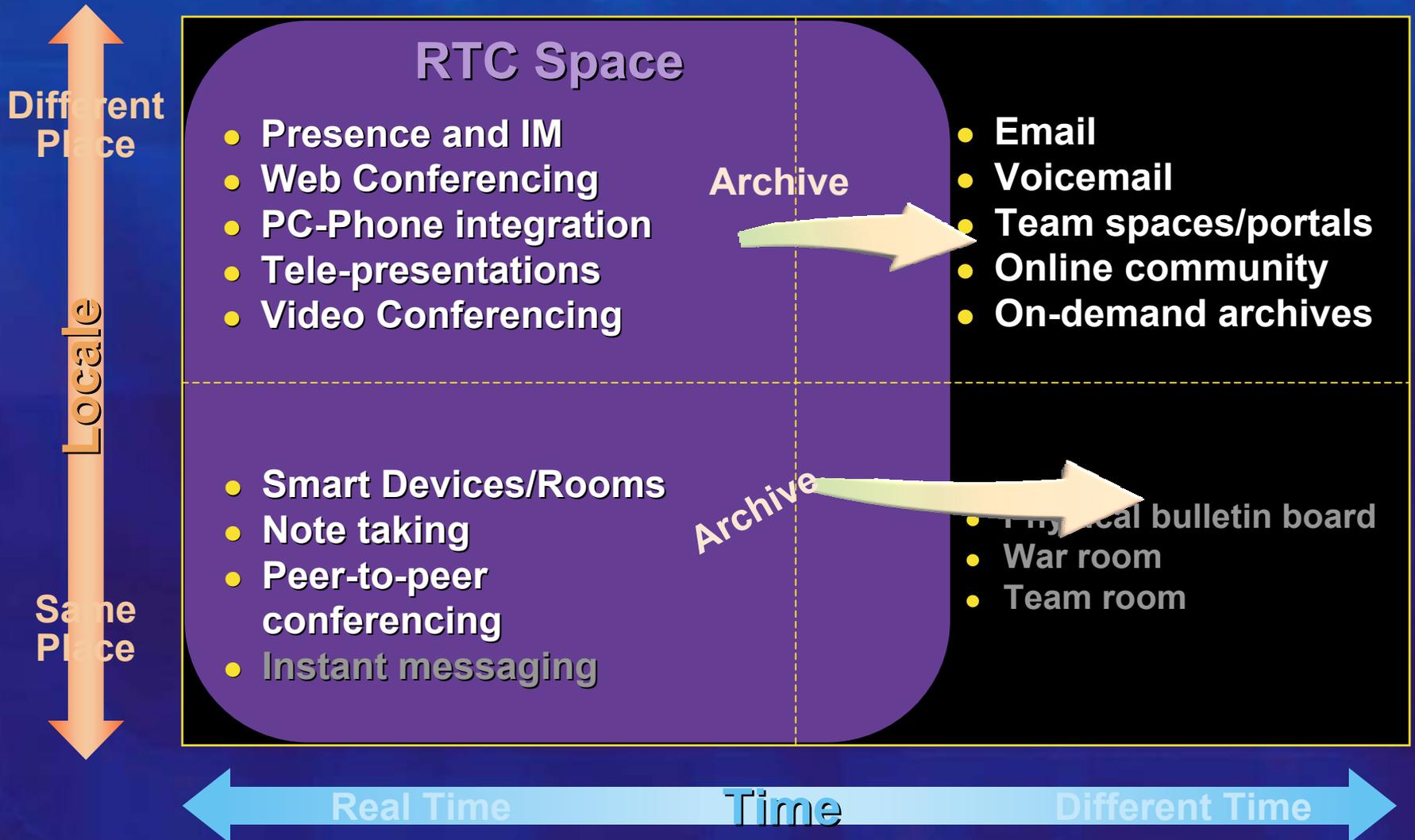
- Empower Information Workers through rich “PC-based” real-time collaboration software and services
 - Integrated multi-modal (text, audio, video, screen, data) collaboration experience, with seamless transition across modes and to non-real-time
 - Integrated seamlessly into enterprise infrastructure (secure, manageable, extensible); server-service continuum
 - Easy to use and contextually available from within productivity and enterprise applications
 - Ubiquitous and reliable; anywhere and any device

Core RTC Vision:

- Bring voice, screen, and computation together
- Make such capability pervasive

Information Worker Collaboration

Real-Time Collaboration Subspace



Seamless User Experience

Windows Messenger v5.0 is the RTC Client – to be released in the same timeframe as RTC Server 2003

Audio/Video Communication

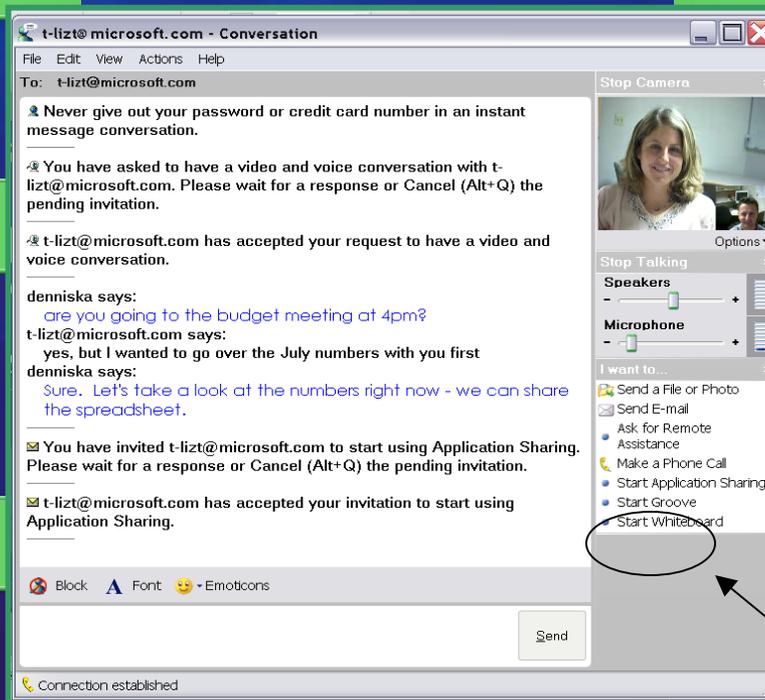
Instant Messaging

Application Sharing

Notifications

SharePoint Integration

Remote Assistance



Add buttons

Office Integration

File Transfer

Web / Screen Conferencing Or Screen Call



PC and Phone Integration

The screenshot shows a Windows XP desktop environment. On the left, there are icons for 'My Computer' and 'My Documents'. The main area features a 'Mike - Conversation' window with the following content:

Call in Progress Call Duration: 1 minute, 24 seconds Show Dial Pad >>

Mike Albertson (work)

Job title: **Department Manager** Company: **System Management, Inc**

Work: (404) 555-1234 Work email: **mikea@company.com**
Home: (404) 555-1245 Home email: **mikealby@hotmail.com**
Mobile: (404) 555-4321 Hobbies: **Golf, big Mariners fan**
Address: **4534 Main St.** Family: **Wife: Mary**
Atlanta, GA 30309 **2 kids: Josh, Karen**

Buttons: Hang up, Hold, Transfer, Conference

Actions: New note, New task, Edit contact information, Set rules for this caller

Information

Atlanta, GA Weather **System Management News** Stock: \uparrow 32.67 -0.25

81° PARTLY SUNNY

System Management announces new major contracts...
Analysts views mixed on System Management's newest board member...
New patent will bring profits on a platter...

Call Notes

Proposal Phone Call June 6, 2002 2:27 PM
Mike had a few concerns about payment terms. Mainly wants to be able to delay the last payment...

Check in call May 28, 2002 11:05 AM
I called to check in where he was with my questions. I need to get him a proposal in the next few weeks...

Communication History

Sort by date | Sort by type | Sort by priority

Taskbar: start | Mike - Conversation | Recycle Bin

Patick Blakeman window:

Seattle 42°/48°

type search here

Online Contacts 22

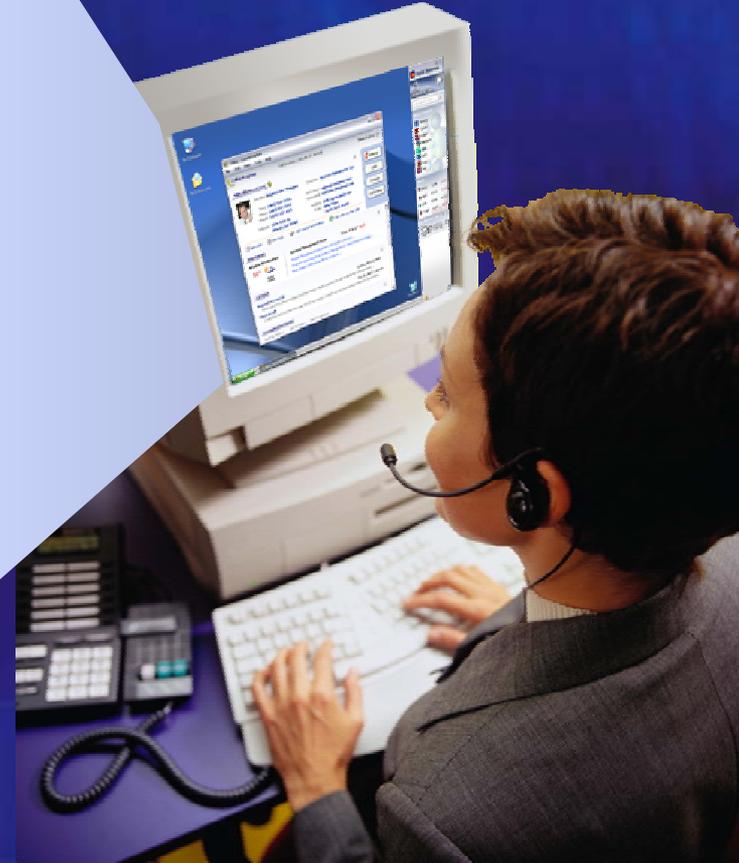
- Jennifer
- Tanner
- William
- Stephanie
- Blake
- John
- Pete
- Tina

Stocks

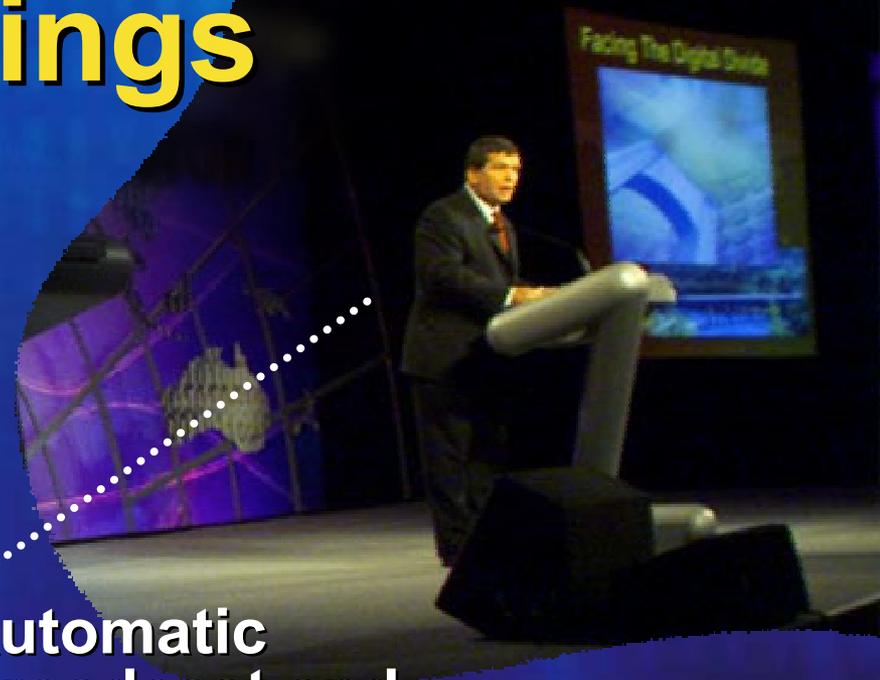
- BIKE 3.85 -0.07
- HOT 37.46 -0.25
- LFB 10.03 +0.03
- TGEN 1.65 -0.07

Cafe del Mar - Co...

Navigation: Play, Stop, Previous, Next



Enhanced Meetings



Automatic
Broadcast and
Recording



Remote Participation



Note taking

From PlaceWare to RTC



- Real Time Collaboration Business Unit
 - Responsibility for all RTC-like activities inside Microsoft
 - On the hook for Microsoft's big-picture RTC strategy
- Collaboration is not an application
 - It's a part of every application
- Client / Server / Service
- Synchronous to Asynchronous to Disconnected
- Ad hoc to scheduled
- P2P to workgroup to enterprise

Why is Pavel Excited About the Future?



- That vision on the horizon looks a lot closer now...