DiscoTech: A Toolkit for Handling User Level Disconnection Problems in Synchronous Groupware

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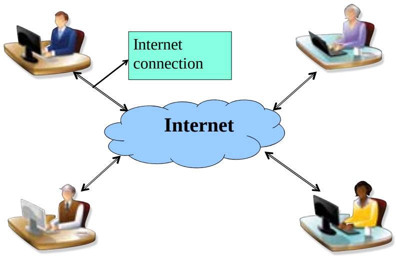
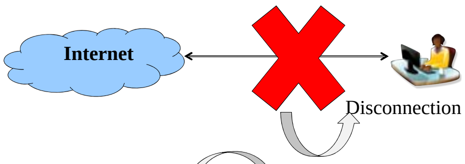
Synchronous Groupware



Using synchronous groupware, a user collaborates with other geographically distributed users in real time.

e.g. chat or video conferencing

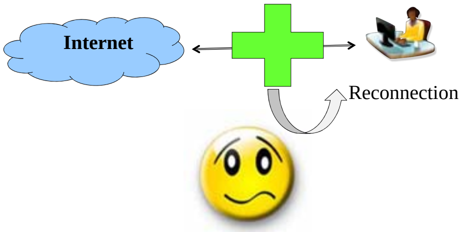
Disconnection



A user gets disconnected due to power failure or network outage

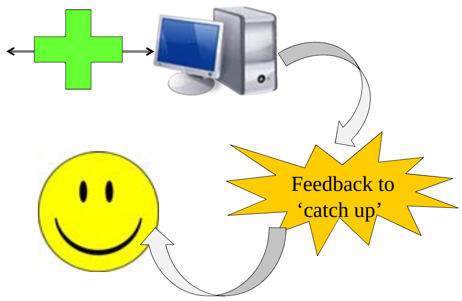
Results in interruption to the flow of collaboration

Reconnection



A reconnected user experiences **interpretation difficulties, confusion or misunderstandings.**

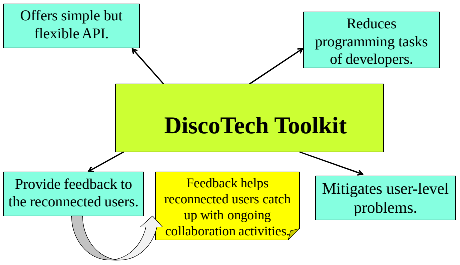
Motivation



Problem

- Disconnections are hard to handle in programming.
- No toolkit exists to help with this problem.

Solution



DiscoTech Toolkit

Offers simple but flexible API.

Reduces programming tasks of developers.

Provide feedback to the reconnected users.

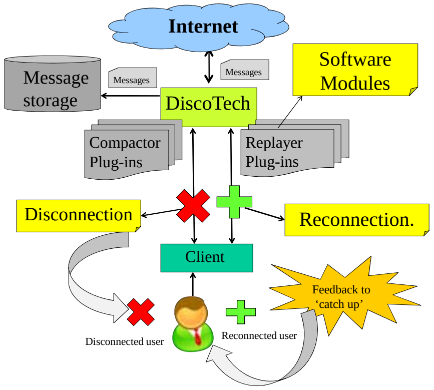
Feedback helps reconnected users catch up with ongoing collaboration activities.

Mitigates user-level problems.

Goals

- Determine if the toolkit is sufficiently generalized.
- Determine whether the toolkit offers a gentle learning curve to the developers:
  - ✓ Does use of the toolkit scale with the complexity of the disconnection problem?

Framework for Providing Feedback



Internet

Message storage

Messages

Messages

Software Modules

DiscoTech

Compactor Plug-ins

Replayer Plug-ins

Disconnection

Reconnection.

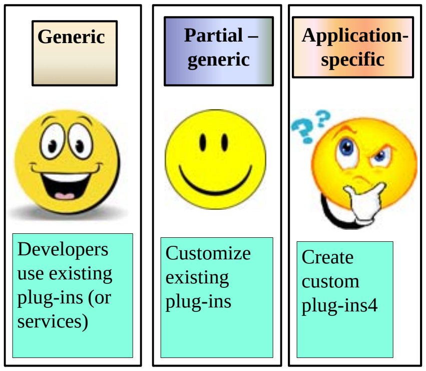
Client

Feedback to 'catch up'

Disconnected user

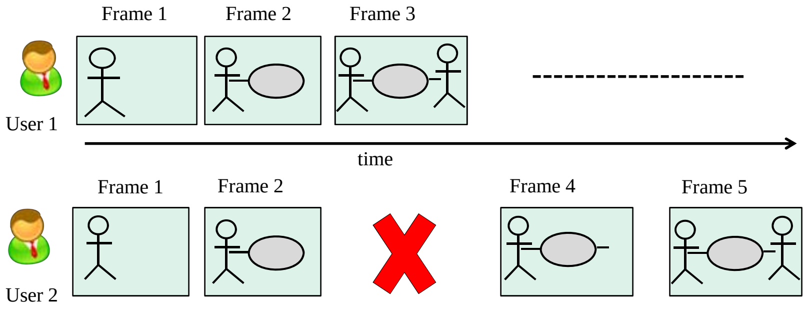
Reconnected user

Gentle Learning Curve



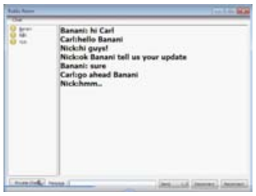
Generic	Partial – generic	Application-specific
Developers use existing plug-ins (or services)	Customize existing plug-ins	Create custom plug-ins4

Reconnected Users Get Feedback

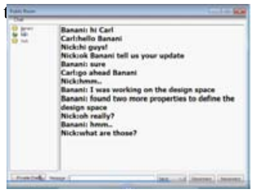


Screen Shots From a Chat Application

Banani

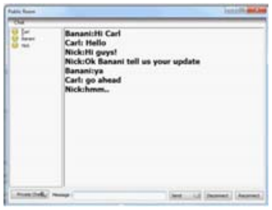


Banani: hi Carl
Carl:hello Banani
Nick:hi guys!
Nick:ok Banani tell us your update
Banani: sure
Carl:go ahead Banani
Nick:hmm..

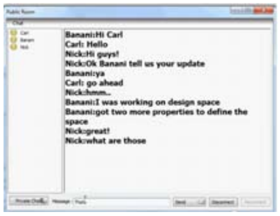


Banani: hi Carl
Carl:hello Banani
Nick:hi guys!
Nick:ok Banani tell us your update
Banani: sure
Carl:go ahead Banani
Nick:hmm..
Banani: I was working on the design space
Banani: found two more properties to define the design space
Nick:oh really?
Banani: hmm..
Nick:what are those?

Carl



Banani:Hi Carl
Carl: Hello
Nick:Hi guys!
Nick:Ok Banani tell us your update
Banani:ya
Carl: go ahead
Nick:hmm..



Banani:Hi Carl
Carl: Hello
Nick:Hi guys!
Nick:Ok Banani tell us your update
Banani:ya
Carl: go ahead
Nick:hmm..
Banani:I was working on design space
Banani:got two more properties to define the space
Nick:great!
Nick:what are those