Telepathy

Real-time Communications Framework

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Rationale

- A new approach to real-time communications
- Unifying IM, VOIP and collaboration
- A brief look at desktop clients...

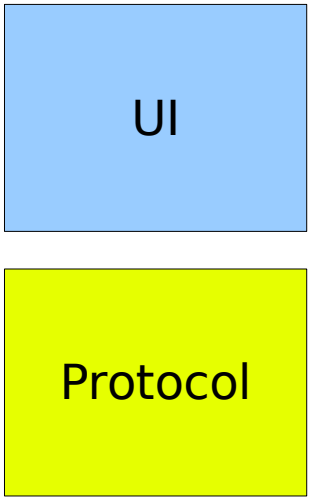
The Unix Way

Do one thing and do it well

The Unix Way

two

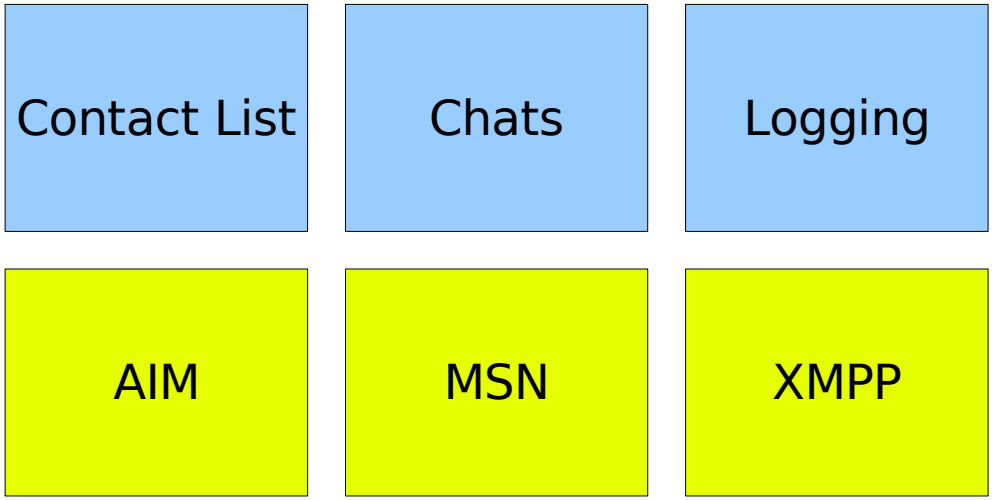
Do ~~one~~ thing and do it well



The Unix Way

six

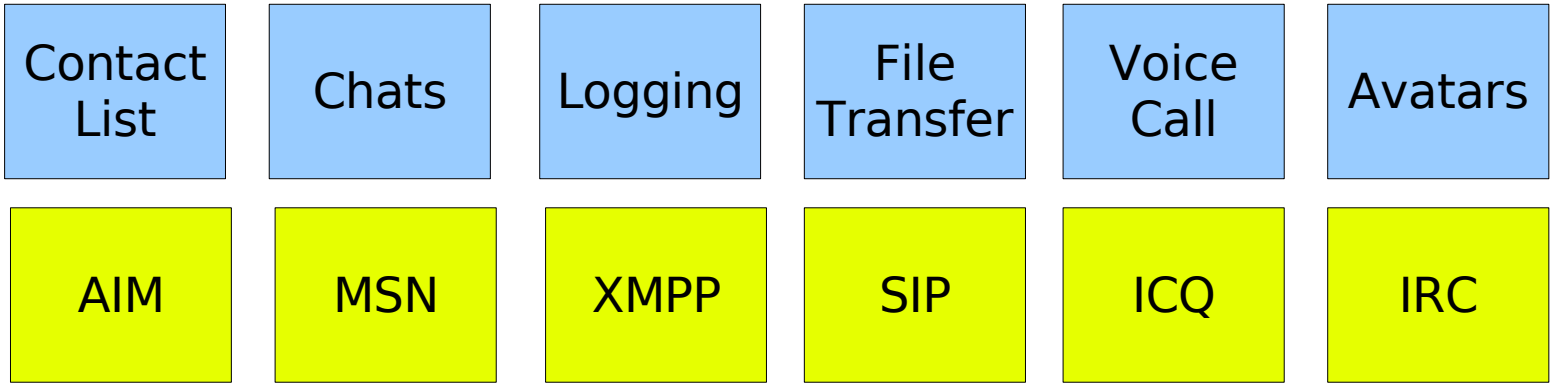
Do ~~one~~ thing and do it well



The Unix Way

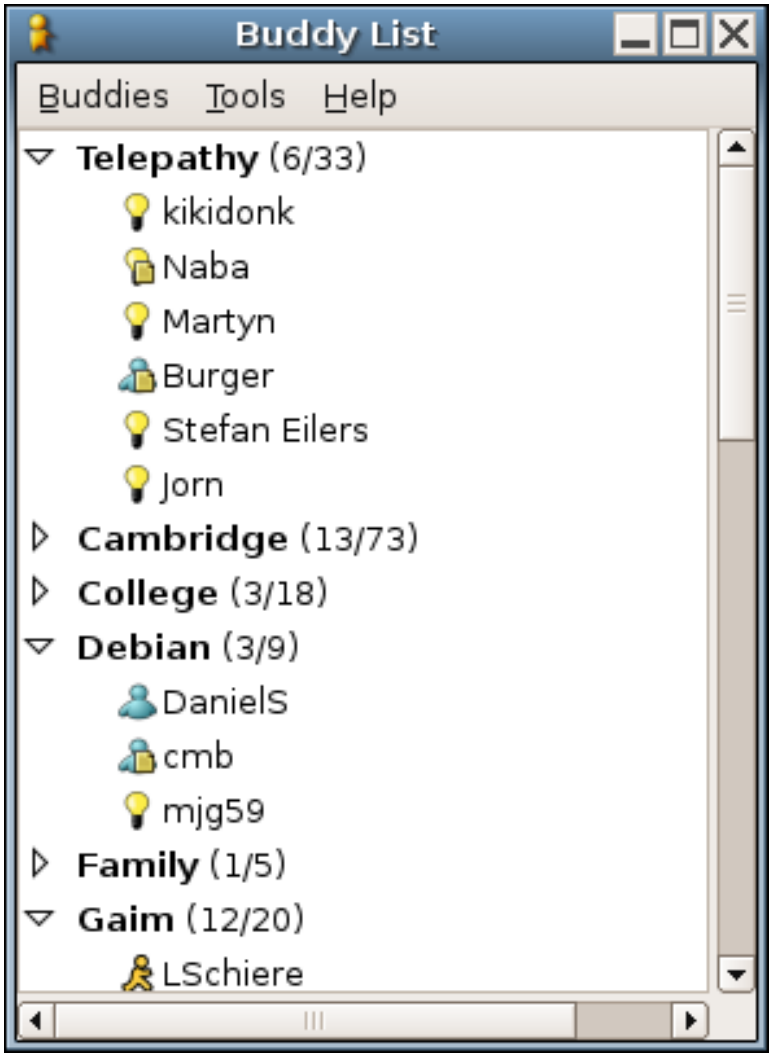
twelve

Do ~~one~~ thing and do it well?



Heading The Same Way

- Gaim users want voice calls...

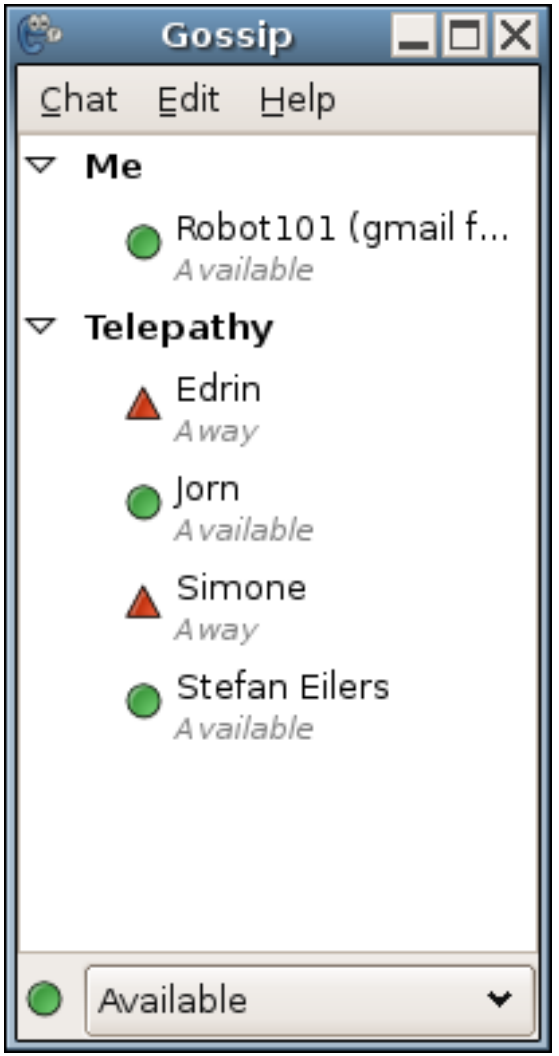


Heading The Same Way

- Ekiga users want IM...

Heading The Same Way

- Gossip users want more protocols...



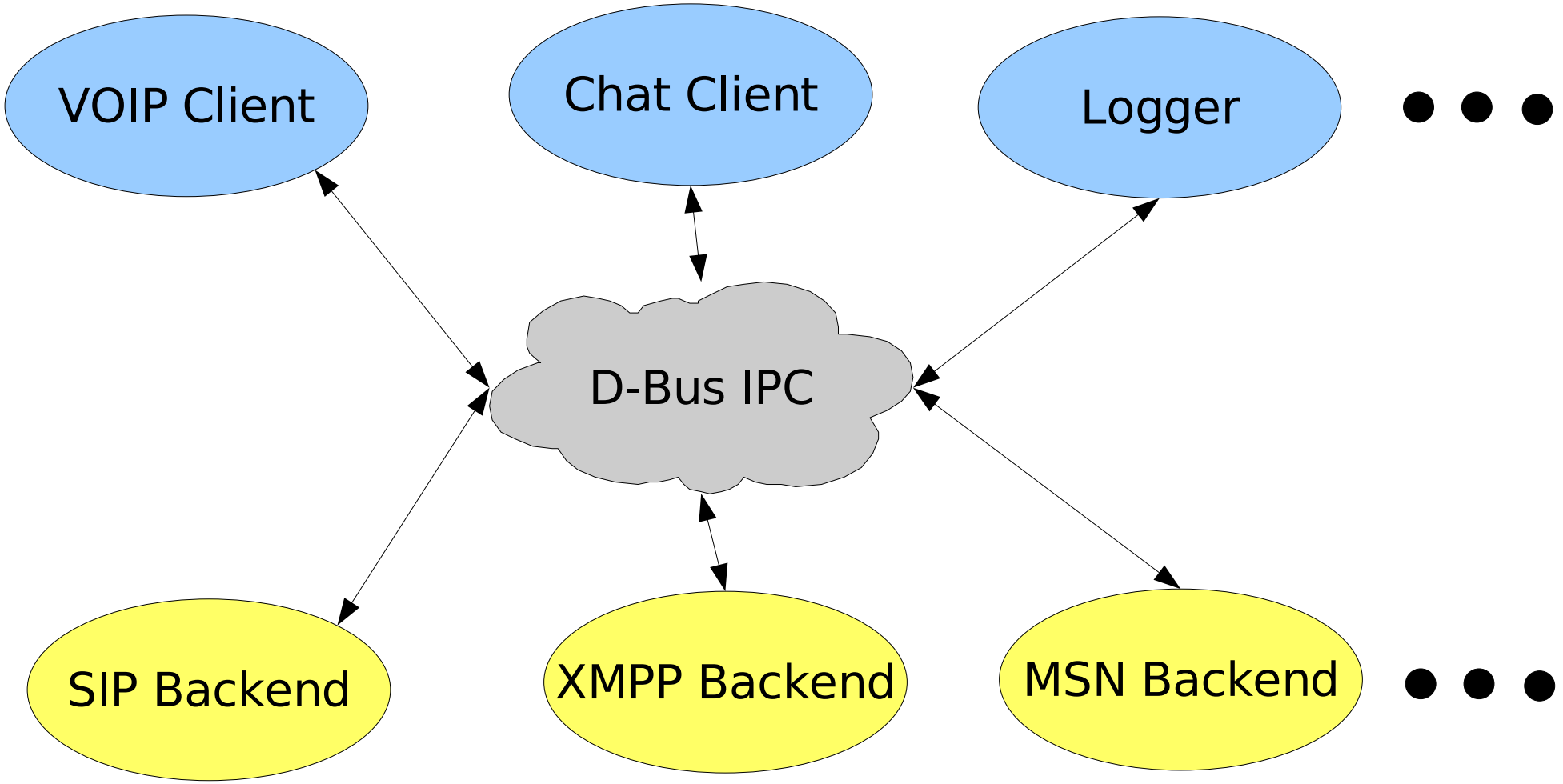
This Sucks

- Massive duplication of effort
- Fragmentation of APIs
- Integration suffers badly
- Few reusable components for embedded devices

The Big Idea

- Move away from the monolithic client
- Split stuff into separate processes
- Run protocols as services on the desktop
- Create a standard API for clients to use presence, messaging, media, etc...

The Big Idea


VOIP Client
Chat Client
Logger
D-Bus IPC
SIP Backend
XMPP Backend
MSN Backend

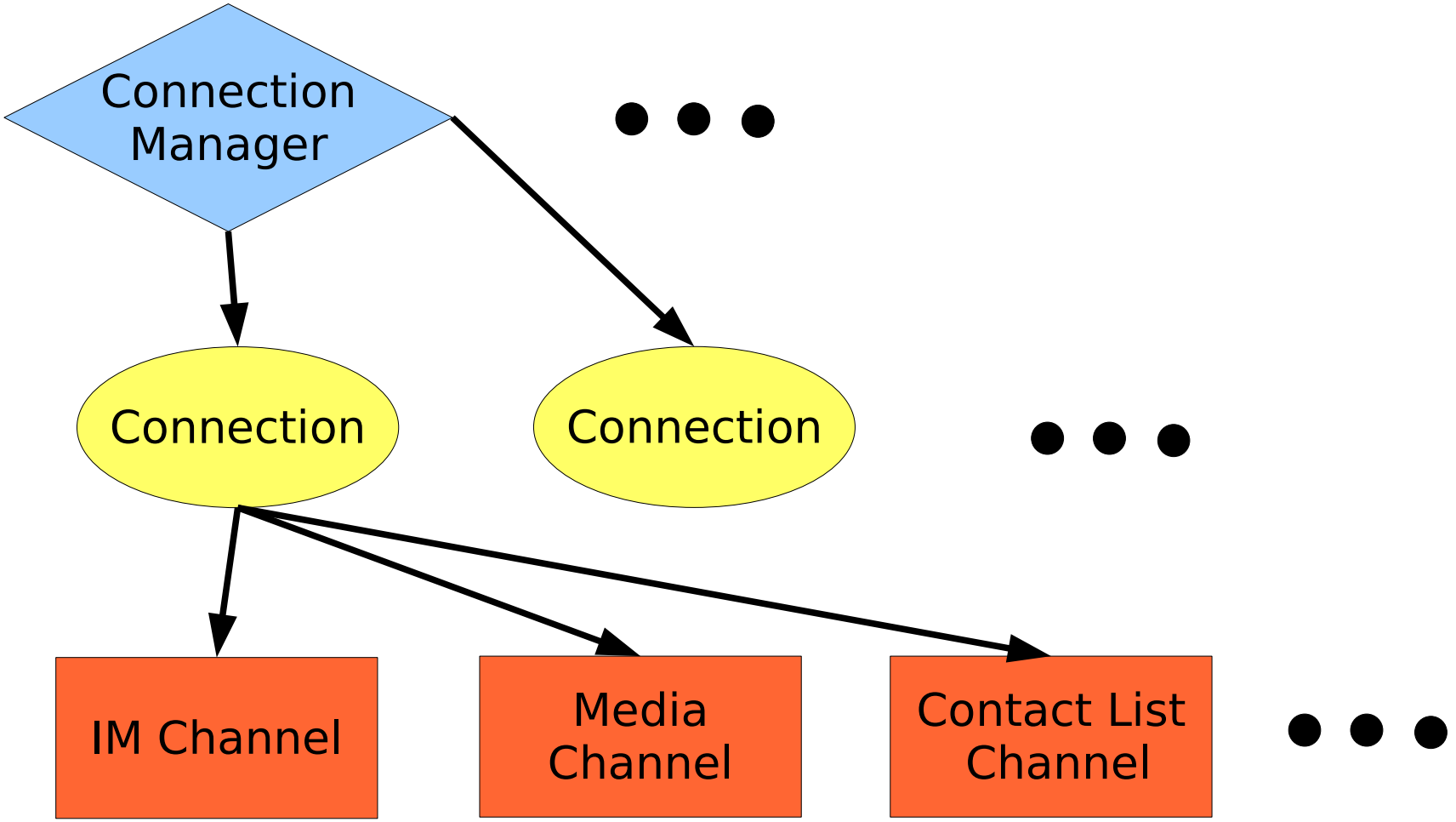
Benefits

- Do one thing and do it well
- Re-usable components
- Interchangeable user interfaces
- Share connections between UI programs
- Language (and license) independence
- Only run what you need

What we're doing...

- Telepathy is a Freedesktop project
- **Massively Important**: well-documented D-Bus API
- Some protocol backends
- Libraries so you can use them

Specification



Specification

- Connection manager objects give you connection objects
- Connections have interfaces: presence, aliases, avatars...
- Connections give you channel objects
- Channels have a type: IM, VOIP/video, contact list...
- Channels have interfaces: properties, groups...

Backend Implementation: Gabble

- Jabber/XMPP backend by Collabora
- Implements IM, multi-user chat and roster channels, presence, aliases, avatars...
- Support Google Talk *and* Jingle signalling for voice and video calls

Backend Implementation: Sofia-SIP

- SIP backend by Nokia and Collabora
- Based on Nokia's Sofia-SIP stack
- Support for voice/video calls and SIMPLE messaging
- Recently open-sourced: http://tp-sofiasip.sourceforge.net/

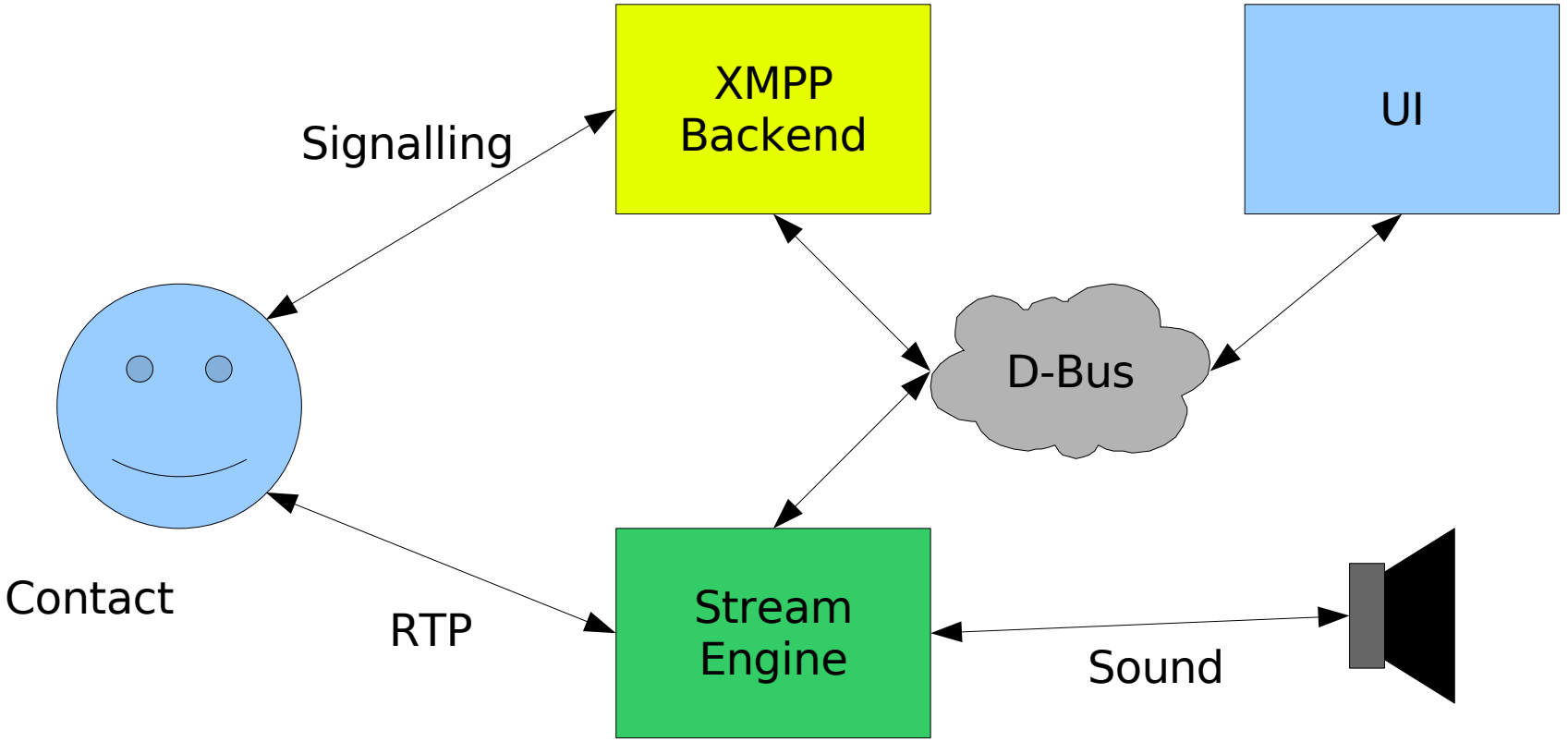
Other Backends...

- Rendezvous: Salut
- IRC: Idle
- MSN: Butterfly
- AIM/ICQ (aka Oscar): Wilde

Stream Engine

- Separate service to handle voice/video/etc streams, independently from the UI
- Signal information over a Telepathy media channel
- Uses Google's libjingle for NAT traversal
- Uses Farsight & GStreamer 0.10 for the RTP streams and codecs
- I'm working on a library...

Stream Engine



Libraries

- libtelepathy (sorry!)
- telepathy-python
- telepathy-glib released today!

Tapioca Project

- Guys from Nokia Technology Institute (INdT) in Brazil
- Similar goals to our project
- Now adopted our specification
- Producing client libraries for Qt, Glib & C#

Landell

- C# client based on Tapioca# and Gtk#

Mission Control

- Just released by Nokia, based on Glib and Gconf
- Stores your account settings
- Manage the presence of all your connections
- Handles incoming events
- See http://mission-control.sourceforge.net/

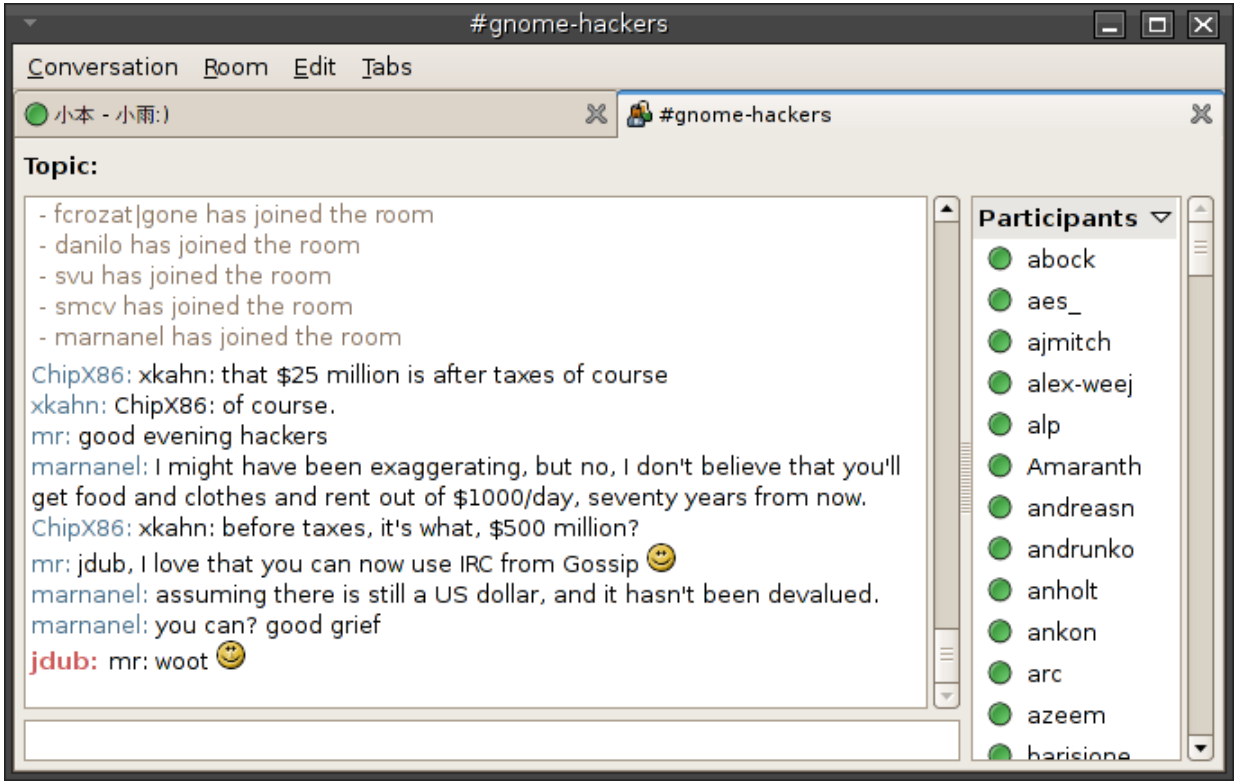
The Knights Who Say NIH

- I already tried making a shared library of the protocol code
- Loose coupling is essential for success
- Making a the client into a library doesn't fix everything
- We chose not to take eg Gaim's protocol code, but it would be cool...

Not Just for IM Clients

- Telepathy's API is for abstracting and sharing the protocol code itself
- Because D-Bus objects can be extended with interfaces, it's not a lowest common denominator abstraction
- The actual policy and behaviour of the client on top is not specified by the API
- So it's useful for other stuff too...

GNOME Integration: Gossip



Telepathy support now in 0.23 release!

GNOME Integration: Gossip

Voice & video support on its way...

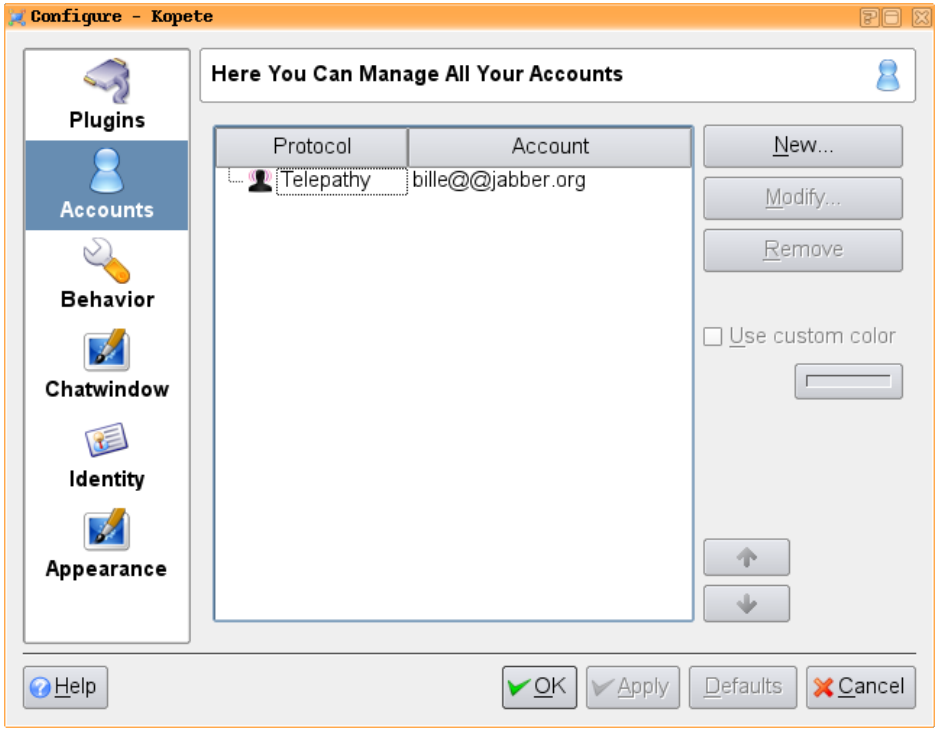
GNOME Integration: Galago

- Christian Hammond's presence framework
- Hook in to Telepathy backends
- See your contacts throughout the desktop...

KDE Integration: Decibel

- “Houston” policy daemon & libraries
- Manage connection managers
- Provide account management
- APIs for common tasks
- Handle incoming events
- Based on Tapioca Qt libraries

KDE Integration: Kopete



- Can use Telepathy backends
- Provide protocols as another Telepathy backend
- Working on Qt libraries with Tapioca

Nokia 770

- IM and VOIP on the Nokia 770 based on Telepathy
- Uses Gabble, Stream Engine and Galago with Nokia UI for Chat, Call & Contacts

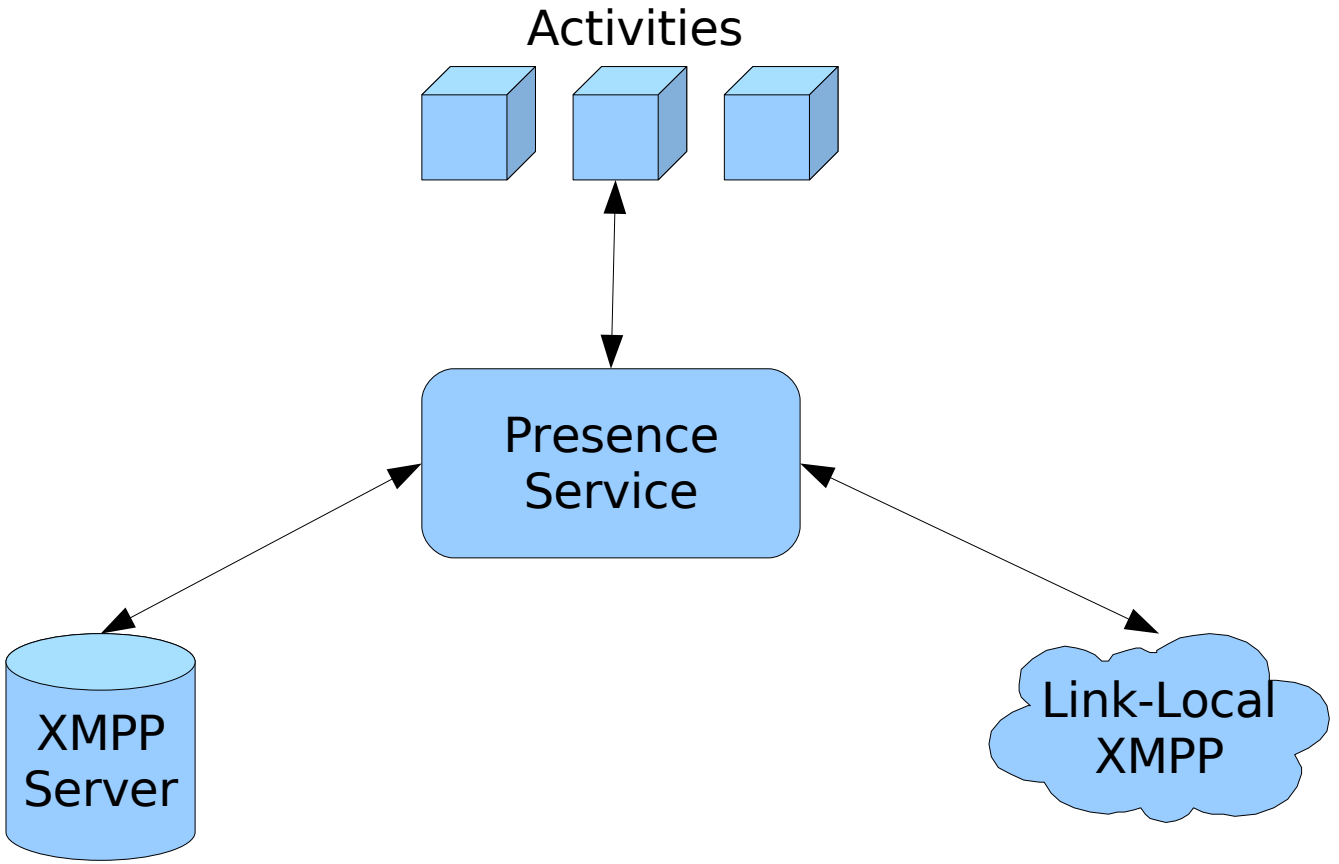
Nokia N800

- Jingle video calls on XMPP using Telepathy, a world first!
- INdT's Canola phone plugin provides alterative UI for placing video calls

One Laptop Per Child

- Using Telepathy for presence & messaging
- Video calls too!

One Laptop Per Child



Just Released: Tubes

- Telepathy channel for exchanging data between contact's applications
- Do the NAT punching and provide TCP, UDP or D-Bus link-up
- Hook up e.g. Inkscape, Abiword or Jokosher without any fragile networking code
- Implemented on XMPP, but more coming soon

Trivial Example

```
import dbus
import time

# connect to the bus
bus = dbus.SessionBus()

# get a connection manager object
gabble = bus.get_object(
    'org.freedesktop.Telepathy.ConnectionManager.gabble',
    '/org/freedesktop/Telepathy/ConnectionManager/gabble')

# request a connection from it
(bus_name, object_path) = gabble.RequestConnection('jabber',
    {'account':'test1@thubuntu', 'password':'badger'},
    dbus_interface=
        'org.freedesktop.Telepathy.ConnectionManager')

# get the connection object
conn = bus.get_object(bus_name, object_path)
```

Trivial Example

```
# tell it to connect and wait a bit
conn.Connect(
    dbus_interface='org.freedesktop.Telepathy.Connection')
time.sleep(3)

# request a handle for our contact
handles = conn.RequestHandles(dbus.UInt32(1),
    ['test2@thubuntu'],
    dbus_interface='org.freedesktop.Telepathy.Connection')

# request a text channel with that handle
object_path = conn.RequestChannel(
    'org.freedesktop.Telepathy.Channel.Type.Text',
    dbus.UInt32(1), handles[0], False,
    dbus_interface='org.freedesktop.Telepathy.Connection')

# get a channel object
channel = bus.get_object(bus_name, object_path)
```

Trivial Example

```
# send a message
channel.Send(0, 'Hello, Santa Clara.',
    dbus_interface=
        'org.freedesktop.Telepathy.Channel.Type.Text')

# disconnect
conn.Disconnect(
     dbus_interface='org.freedesktop.Telepathy.Connection')
```

Exciting Demo

- What could possibly go wrong...

Big up the Telepathy massive!

- Wiki: http://telepathy.freedesktop.org/
- IRC channel: irc.freenode.net #telepathy
- Mailing list: telepathy@lists.freedesktop.org
- Development supported by Collabora Ltd: http://www.collabora.co.uk/