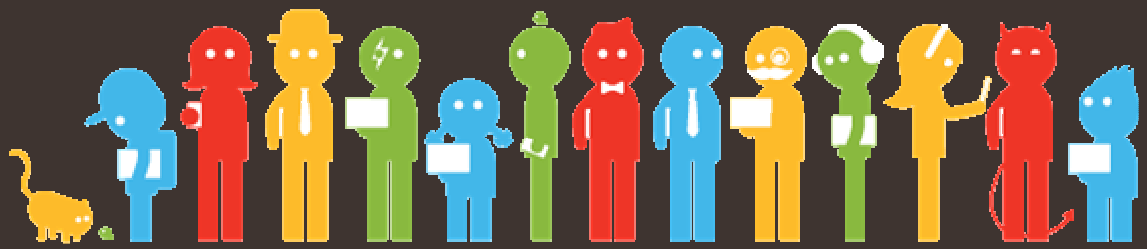
syncEvolution

synchronizing personal information management data

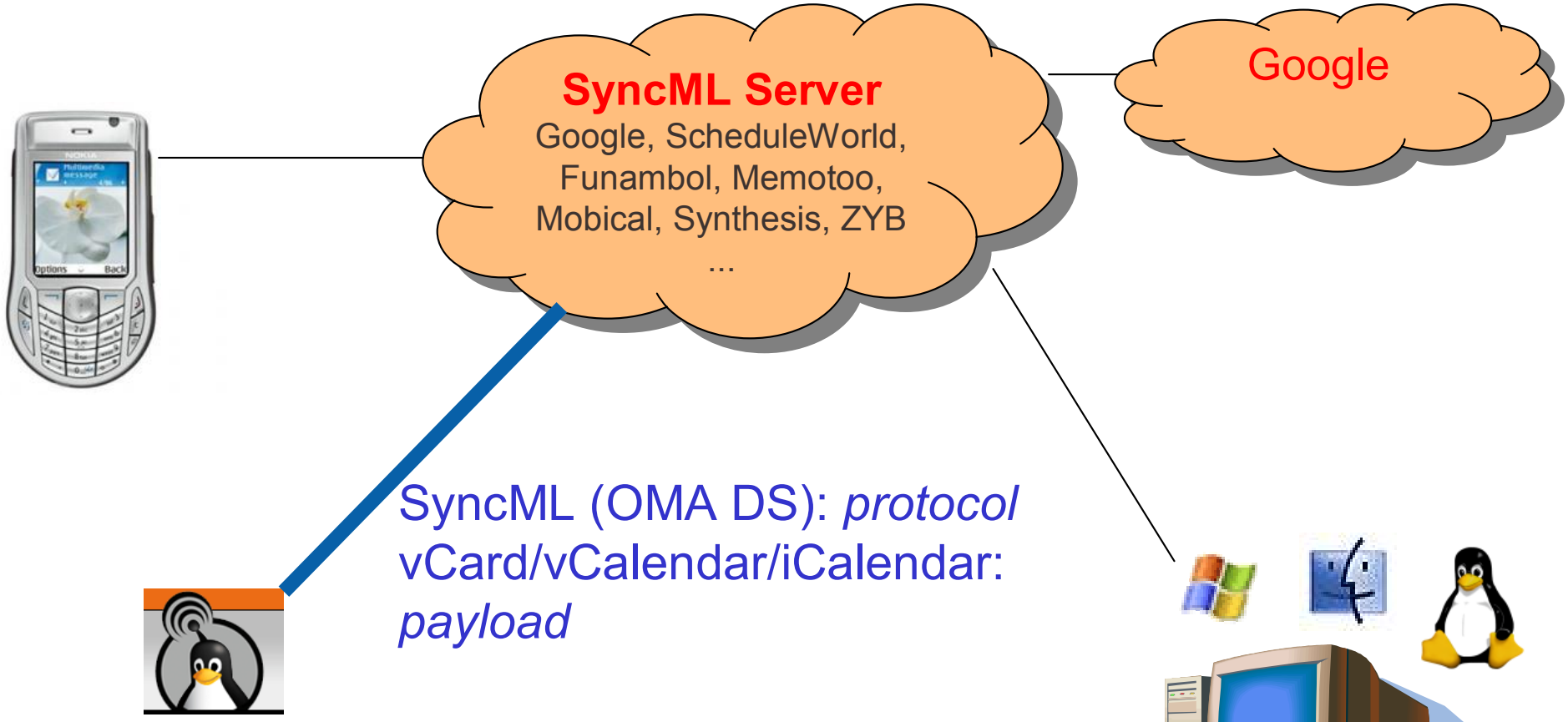
Patrick Ohly

03.02.2010



Project Overview

Over The Air Sync



SyncEvolution - Sync PIM
(Contacts, Events, Tasks, Notes)

History "The Missing Link"

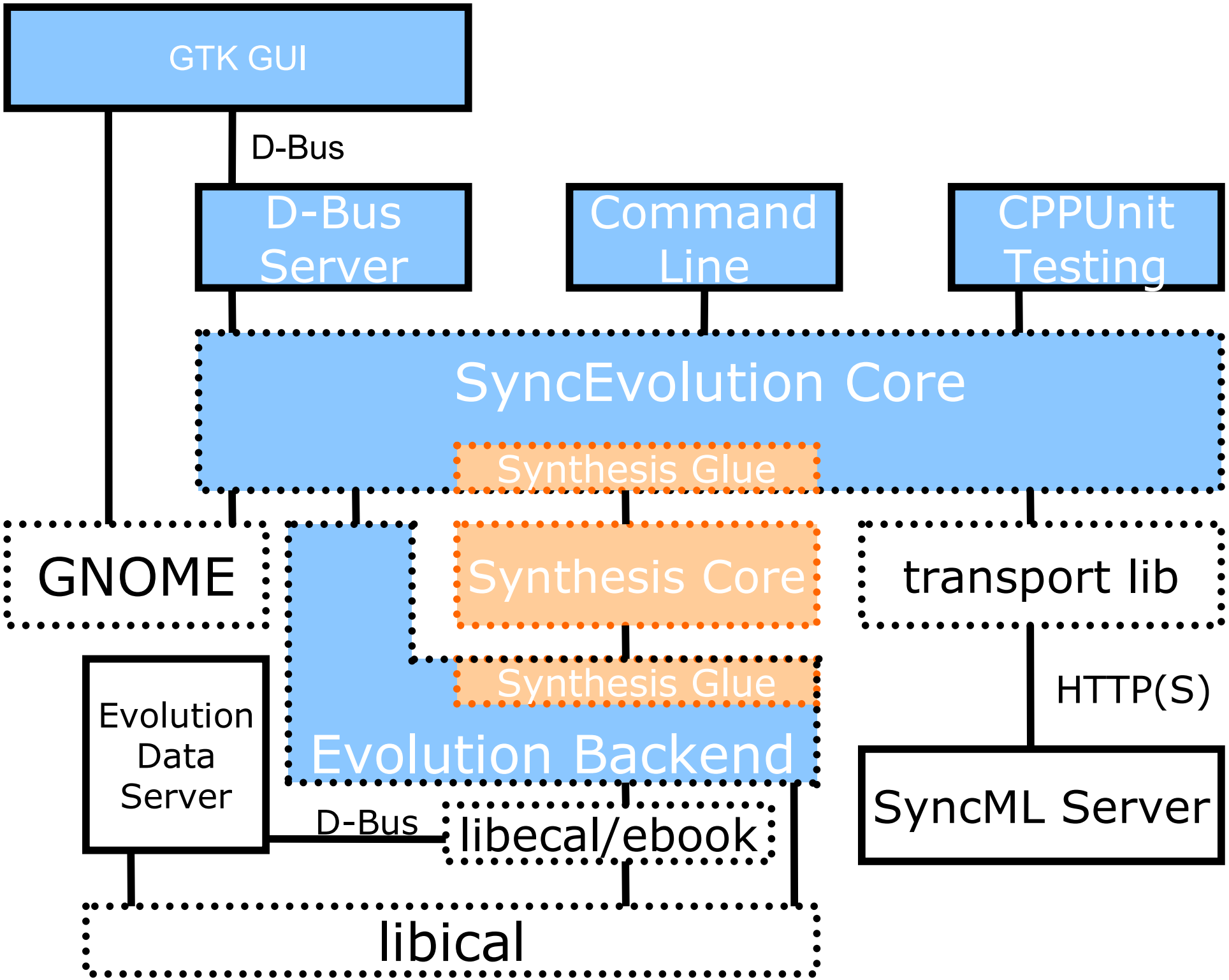
- SyncEvolution: spare time project for >3 years, full-time since 2009
- So far: SyncML client for
  - Evolution/Moblin
  - iPhone+Mac OS X (need maintainer)
  - Maemo (Ove Kaaven: Maemo 5)
  - KDE (under development)
- More to come in 1.0:
  direct synchronization

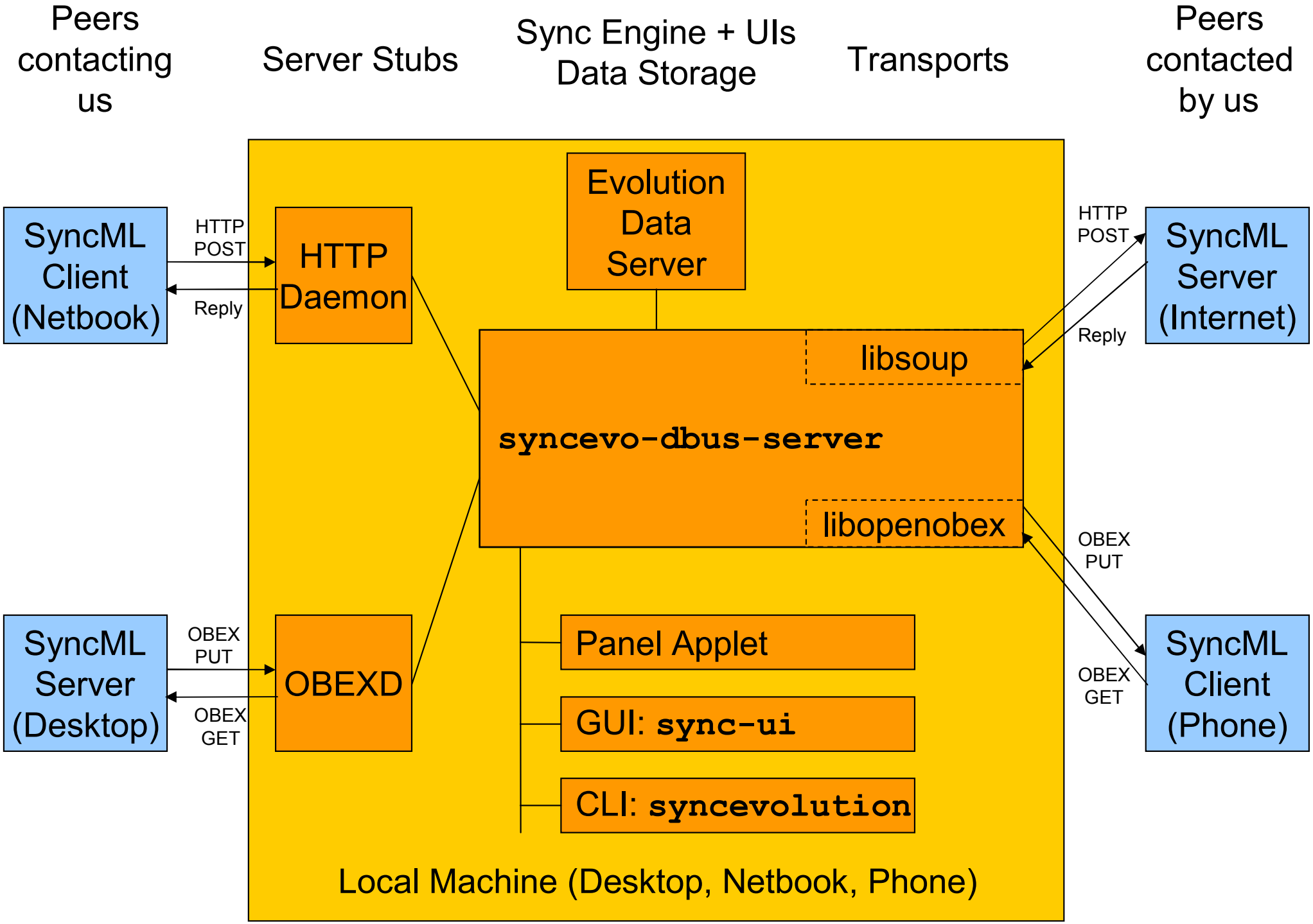
Synthesis

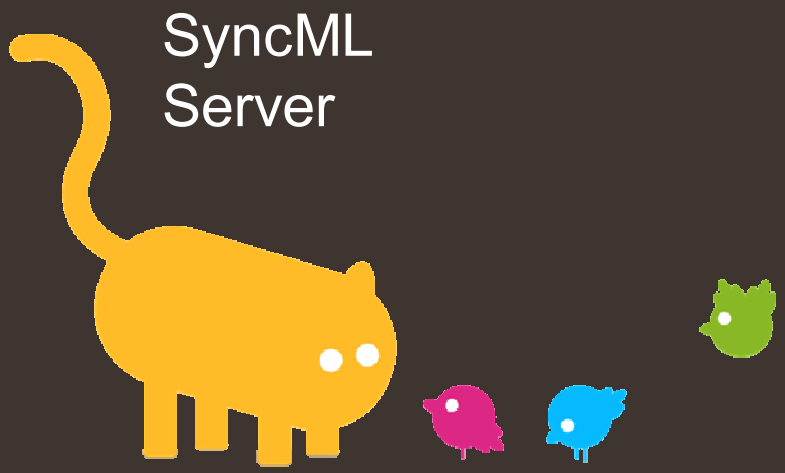
- Swiss company with >10y experience with SyncML, owned by the two main developers
- Synthesis SyncML Engine:
  - C++ implementation of client **and server**, data merging and conversion
  - Stable C API+ABI
  - LGPL 2.1+3.0
- Funambol: three different code bases, no stable ABI, AGPL v3
- libsyncml: only lower protocol layers, lacks synchronization engine
- OpenSync/Conduit: no/limited (?) data conversion

Components

- SyncEvolution:
  - User interface (command line, GTK GUI)
  - Configuration handling
  - Local data backends (Evolution Data Server, Mac OS X Address Book, files, XMLRPC, Akonadi)
  - Message transport (HTTP via libsoup/libcurl)
  - Test suite
- libsynthesis:
  - SyncML protocol (up to 1.2.1 very complete)
  - Data conversion, merging, database storage (ODBC)
- libsmltk (SyncML Toolkit):
  - Message encoding/decoding (XML + WBXML)


GTK GUI
D-Bus
D-Bus Server
Command Line
CPPUnit Testing
SyncEvolution Core
Synthesis Glue
GNOME
Synthesis Core
transport lib
Synthesis Glue
HTTP(S)
Evolution Backend
Evolution Data Server
D-Bus
libecal/ebook
SyncML Server
libical


Peers contacting us
Server Stubs
Sync Engine + UIs Data Storage
Transports
Peers contacted by us
SyncML Client (Netbook)
HTTP POST
Reply
HTTP Daemon
Evolution Data Server
libsoup
syncevo-dbus-server
libopenobex
HTTP POST
Reply
SyncML Server (Internet)
SyncML Server (Desktop)
OBEX PUT
OBEX GET
OBEXD
Panel Applet
GUI: sync-ui
CLI: syncevolution
OBEX PUT
OBEX GET
SyncML Client (Phone)
Local Machine (Desktop, Netbook, Phone)



SyncML Clients

PIM Sync Challenges:

It can eat your data?!

PIM Sync + Interoperability Challenges

1. No globally unique ID.
2. Different representation of data inside clients.
3. Offline updates allowed: what is the most recent data?
4. Must support standard formats, including legacy ones (vCalendar).
5. Must work with limited knowledge about peers (capabilities, behavior).

SyncML as Protocol

- “slow sync” - client sends all items, server compares, sends updates back
- “normal sync” - exchange of updates
- Resilient – suspend&resume (voluntarily or due to loss of connection), resend messages
- Avoid overloading peer: maximum message size, flow control
- Device Capability description

SyncML Client

- Easy to implement, less complex side
- List items and changes since last sync session, using locally unique ID
- Import and export items, either in standard format or Synthesis representation
- Data merging optional (supported by Synthesis engine)

SyncML Server

- Convert data between clients
- Map between local IDs
- Handle conflicts:
  - Fixed policy in HTTP servers
  - More flexible in desktop apps?!
- Merge incomplete updates received from dumb clients with complete item on server
- Synthesis: same datastore API as on client side

Synthesis Data Handling

- Specified via XML config: new data formats can reuse existing mechanisms.
- Field list declares internal format and key properties for matching items.
- Conversion to and from external formats via one or more profiles; can be parameterized.
- Can use modification time stamps and different conflict resolution policies (duplicate, merge).
- Uses Device Capabilities: solves the “property removed or not supported?” problem.

Next Steps + Getting Involved

Next Steps

- 1.0 release: beta available, release end of March
  - Sync in background + recovery
  - Direct device-to-device sync
- Beyond 1.0:
  - Device database (“config templates”)
  - Support more local backends, including adaptors for other protocols (need contributors!)
  - Local sync between backends
  - Push sync

Getting Involved

- http://syncevolution.org
- Mailing list, also on Gmane
- bugzilla.moblin.org with enhancement ideas
- “SyncML Client Do-it-yourself Style”
- LWN.net article, long version on moblin.org