Libre Texting
NSF SBIR
A Proposal

Mohsen BANAN
http://mohsen.banan.1.bbyname.net/ContactMe

Neda Communications, Inc.
http://www.neda.com

April 2009
http://www.neda.com/PLPC/100109
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<table>
<thead>
<tr>
<th></th>
<th>BlackBerry</th>
<th>WhiteBerry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Device</td>
<td>Only the two RIM-manufactured devices</td>
<td>Any suitable mobile device</td>
</tr>
<tr>
<td>Wireless Modem</td>
<td>Only the integral RIM modem</td>
<td>Any suitable wireless modem</td>
</tr>
<tr>
<td>Wireless Network</td>
<td>Only the BellSouth Intelligent Wireless Network</td>
<td>Any suitable wireless network</td>
</tr>
<tr>
<td>Message Center Service</td>
<td>Only the RIM-operated or RIM-licensed service</td>
<td>Any independent service provider; any corporate e-mail system</td>
</tr>
<tr>
<td>Protocols</td>
<td>Proprietary RIM protocols</td>
<td>Open LEAP protocols</td>
</tr>
<tr>
<td>Desktop Integration</td>
<td>Only Microsoft Outlook</td>
<td>Any desktop mail application</td>
</tr>
<tr>
<td>Message Center Integration</td>
<td>Only Microsoft Exchange</td>
<td>Any Message Center system</td>
</tr>
<tr>
<td>System Integration</td>
<td>Exclusively by RIM</td>
<td>Any systems integrator</td>
</tr>
<tr>
<td>Security</td>
<td>Not true end-to-end Implementation details unknown Precludes other implementations</td>
<td>Open paradigm permits external security implementation</td>
</tr>
<tr>
<td>Message Center</td>
<td>Wide-Area Wireless Network</td>
<td>Cellular Phone</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>EMSD Protocol</td>
<td>EMSD Protocol</td>
<td>User Message Alert</td>
</tr>
<tr>
<td>EMSD Server Agent</td>
<td>EMSD Server Agent</td>
<td>IMAP Server (optional)</td>
</tr>
<tr>
<td>IP</td>
<td>IP</td>
<td>Message Store</td>
</tr>
<tr>
<td>Wireless-IP Network</td>
<td>IP</td>
<td>Mail Notification Send</td>
</tr>
<tr>
<td>IP</td>
<td>IP</td>
<td>EMSD Protocol</td>
</tr>
<tr>
<td>WAN Access</td>
<td>Local Access</td>
<td>Bluetooth, RS-232, ... etc.</td>
</tr>
</tbody>
</table>

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Chapter 3 Well-Known Services

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Libre Texting and Libre Collaborative Overlay Network and Wi-Fi++

Secure and Mobile Applications

Libre Texting
- EMSD RFC-2524
- ESRO RFC-2188

Secure and Mobile Overlay Network

Libre Collaborative Overlay Network
- Secure and Mobile Facilities (SMF)
- Wi-Fi Collaborative Public Easement (WCPE)

Wi-Fi UnderNets
- Wi-Fi ++
- 3G
- Wi-Fi ++
- WiMax
- Wi-Fi ++
- MURS
- ... Wi-Fi ++
- Wi-Fi

Libre Texting and Libre Collaborative Overlay Network and Wi-Fi++
INBOX
WCE
Mail Transport Services Provider API
EMSD-P&FS
ESROS
POP3
and
SMTP
Winsock API
UDP TCP
IP
SLIP PPP
CDPD Wireless Modem
= Published Interface

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<table>
<thead>
<tr>
<th>Customer</th>
<th>PUBLIC (ISP)</th>
<th>PRIVATE (Corporate Intranet)</th>
<th>PERSONAL (Desktop)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Data Providers, Paging Operators, ISPs, ...</td>
<td>Intranet Messaging Operators Fortune 5000</td>
<td>Desktop Users</td>
<td></td>
</tr>
<tr>
<td>Product Description</td>
<td>Message Center for ISPs, ...</td>
<td>Message Center for Intranet</td>
<td>Personal Desktop Forwarders</td>
</tr>
<tr>
<td>Platforms</td>
<td>Solaris, Windows NT</td>
<td>Windows NT, Solaris, most other UNIX platforms</td>
<td>Windows NT/95/98, Solaris, most other UNIX platforms</td>
</tr>
<tr>
<td>Typical End-Customers</td>
<td>AT&amp;T, GTE, PSI, UUNET, Netcom, ...</td>
<td>Boeing, Virginia Mason Hospital, ...</td>
<td>YOU</td>
</tr>
<tr>
<td>Key Attributes</td>
<td>Manageability, Scalability, Reliability</td>
<td>Ease-of-use, Plug-and-play, Corporate Control</td>
<td>Ease-of-use, Plug-and-play, Personal Control</td>
</tr>
<tr>
<td>Analogy</td>
<td>Phone company provided voice mail (Octel, ...)</td>
<td>Corporate provided voice mail (Active Voice, ...)</td>
<td>Personal controlled voice mail (answering machine, ...)</td>
</tr>
<tr>
<td>Licensing</td>
<td>500-pack user license - $8 to $25 per user</td>
<td>50-pack user license - $100 to $200 per user</td>
<td>Personal user license - $25 per user</td>
</tr>
</tbody>
</table>
Format Standards
- Content-type Header Field (RFC 822)
- MIME (RFC 1521, 1690)

Routing & Relaying
- Domain Requirements (RFC 920)
- DNS (RFC 1034-35)

Submission & Delivery
- SMTP Extensions (RFC 1651-3)
- UUCP (RFC 976)
- SMTP (RFC 821)
- SMFIP (RFC 821)

Protocols
- TCP/IP
- IP

Mailbox Access
- PEM (RFC 1421-24)
- Mail Routing And Relaying (RFC 974)

MIME (RFC 1521, 1690)
BERKELEY SOCKET API

EMSD

ESR O

MAIL USER INTERFACE

MsgAgent

SMTP/
IMAP

BERKELEY SOCKET API
<table>
<thead>
<tr>
<th>protocol</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIME</td>
<td>(RFC-1341-42)</td>
</tr>
<tr>
<td>RFC-822</td>
<td>HTML-XML</td>
</tr>
<tr>
<td>EMSD</td>
<td>EHTD</td>
</tr>
<tr>
<td>ESRO</td>
<td>(RFC-2188)</td>
</tr>
</tbody>
</table>

**DATA GRAMS**

- InterWorking Function

**OPTIONAL SECURITY FUNCTIONS**

- Mobile-IP

**IP**

- NarrowbandPCS (NPCS)

**CDPD**

- CDMA

**GSM**

- IS-136

**CDMA**

- IDEN

**SMS**

- 4G

**INTERNET PCS (IRPCS)**
EMSD-UA Licensing Strategy

EMSD-UA Professional Edition

EMSD-UA

Limited ESRO

OCP

= Neda Professional Edition Source License (NPESL)

EMSD-UA Free Edition

EMSD-UA

Limited ESRO

OCP

= Neda Free Edition Source License (NFESL)
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Libre Texting NSF SBIR
The Global Revenue for wireless access to the Internet and Intranet-Centered Services, Equipment, and Software: 1997 to 2002

SOURCE: Killen & Associates, Inc.
<table>
<thead>
<tr>
<th></th>
<th>OPEN DEVICES</th>
<th></th>
<th>CLOSED DEVICES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Palm Pilot</td>
<td>WinCE</td>
<td>Other PDAs</td>
<td>Other Phones</td>
</tr>
<tr>
<td>Customer/User</td>
<td>You</td>
<td>You</td>
<td>You</td>
<td>Sierra, Novatel</td>
</tr>
<tr>
<td>Typical Devices</td>
<td>You</td>
<td>Minstrel, AirCard 300</td>
<td>Palm VII</td>
<td></td>
</tr>
<tr>
<td>Platform</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Licensing</td>
<td>Shrink Wrap</td>
<td>Neda Prof Source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Licensing</td>
<td>GPL</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
Neda Open Business Plan
The By* Family of Libre Services

Neda LibreCenter
Neda By*
Mobile Virtual Networks

By*- GNOME     By*-EOE     By*-UCLUE

By* Libre Facilities
Content Publication, MsgCenter, ...

ByWhere
BySMB
ForSMB
ByName
ByAlias
ByMemory
ByFamily

By* Libre Facilities
Content Publication, MsgCenter, ...

Libre Services Integration Platform (LSIP)

BySource.org
ByBinary.org

Context within The Big Picture

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SOFTWARE

PROPRIETARY

- Driven by commercial interests
- Monopoly
- Microsoft Windows

NON-PROPRIETARY

- Driven by user interests
- Free Software Movement
- GNU/Linux

SERVICES

- Driven by commercial interests
- Oligopoly
- AOL, MSN, Yahoo

- ?
CONCEPTUAL DEFINITION: Intellectual work to define and articulate the concept. *Libre Services Manifesto*

COLLABORATIVE FRAMEWORK: Framework for collaborative engineering development. *LibreServices.org*

ENGINEERING DEVELOPMENT: Collaborative engineering development. *Libre Service Engines*

DEPLOYMENT AND DELIVERY: Deployment/operation of Libre Services. *ByName, ByAlias etc.*

Free Protocols Foundation

Industry at large
<table>
<thead>
<tr>
<th>Device</th>
<th>Free</th>
<th>Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modem Portation Kit</td>
<td>Neda Phone Portation Kit</td>
<td>ESRO Device Development Kit</td>
</tr>
<tr>
<td>Modem Portation Kit</td>
<td>Neda UA</td>
<td>ESRO Protocol Engine</td>
</tr>
<tr>
<td>ESRO Development Kit</td>
<td>ESRO Protocol Engine</td>
<td>ESRO Server Development Kit</td>
</tr>
<tr>
<td>OCP Device Side</td>
<td>OCP (LGPL)</td>
<td>OCP Server Side</td>
</tr>
</tbody>
</table>

Licensing Strategy:
- Free Software License (GPL, LGPL)
- Neda Professional Server Side License
- Neda Professional Device/Client Side License

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Neda Open Business Plan

The By* Family of Libre Services

Libre Services Integration Platform (LSIP)

Neda By*

Mobile Overlay Networks

By*- GNOME  By*-EOE  By*-UCLUE

By* Family of Libre Services

ByInteractions

ByEvent, ByTopic, ...

ByWhere  BySMB  ForSMB

ByName  ByAlias  ByMemory  ByFamily

Libre Efficient Application Protocols (LEAP)

Free Protocols Foundation

Libre Collaborative Mobile Overlay Networks (CMON)

Libre Services Integration Platform (LSIP)

BySource.org  ByBinary.org

Context within The Big Picture
Neda Open Business Plan
The By* Family of Libre Services

Neda LibreCenter
Neda By*
Mobile Overlay Networks

By*- GNOME  By*-EOE  By*-UCLUE
By* Family of Libre Services

ByInteractions

ByEvent, ByTopic, ...

Free Software
Libre Service
Neda Asset
FPF Resource

Libre Collaborative Mobile Overlay Networks (CMON)

Libre Efficient Application Protocols (LEAP)

ByWhere
BySMB
ForSMB
ByName
ByAlias
ByMemory
ByFamily

Libre Services Integration Platform (LSIP)

BySource.org  ByBinary.org

Context within The Big Picture
* MMA = MailMeAnywhere
<table>
<thead>
<tr>
<th>Web Site</th>
<th>Information Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| www.EMSD.org                      | PROTOCOLS AND STANDARDS | - Base Protocol Specifications  
- White Papers  
- Application Programming Interfaces  
- Supported Subnetworks and Devices  
- Related Mailing Lists              |
| www.ESRO.org                      | PATENT FREEDOM   | - Free Protocols Process & Procedures                                                                                                       |
- Message Center Products (Solaris)  
- Developer Toolkits  
- Service Bureau & Intranet Products |
| www.FreeProtocols.org             |                  |                                                                                                                                           |
| www.NEDA.com                      | PRODUCTS         | - FREE Mobile Messaging Accounts  
- Web Based Message Origination  
- Interactive Voice Response Service for Enhanced Two-Way Paging  
- Advanced services for the sophisticated mobile professional  
- A coherent package addressing all of your personal communication needs in one place using "Your Name" |
| www.MailMeAnywhere.org            |                  |                                                                                                                                           |
| www.ByNumber.net                  | SUBSCRIBER SERVICES |                                                                                                                                         |
| www.ByName.net                    |                  |                                                                                                                                           |

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**EMSD Layer**

**Source**
- Product Name: EMSD-SA-BASE-SRC
- Product Name: EMSD-SA-TEST-TOOLS-SRC

**Binary**
- Product Name: ETWP-SA-ISP
- Product Name: ETWP-SA-CPMC
- Product Name: ETWP-SA-Palmtop
- Product Name: ETWP-SA-Wins32
- Product Name: ETWP-SA-HP200

---

**ESROS Layer**

**Source**
- Product Name: ESROS : Base Source
- Product Name: ESROS : Test Tools Source

**Binary**
- Product Name: ESRO Development Toolkit
WIRELESS - IP
e.g. CDPD, GSM,
Packet CDMA, iDEN

Customer Premise MC
ISP Based MC
Desktop MC

E-mail: EMSD
Web: EHTD
NATIVE INTERNET APPLICATIONS
CMON Plane
Collaborative Mobile Overlay Network

Cellular
Cell Subnet

WiMAX
WiMAX Subnet

Wi-Fi Intranet Plane
Easement A

VPN
Easement B

Internet Plane
<table>
<thead>
<tr>
<th>Use</th>
<th>Protocol</th>
<th>Usage/Publications</th>
<th>Publication/Availability</th>
<th>Open Source Implementation</th>
<th>Commercial Implementation</th>
<th>Development/Maintenance</th>
<th>Standards Body Blessing</th>
<th>Long-term Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>TCP/IP</td>
<td>Free</td>
<td>RFC / Open</td>
<td>Many</td>
<td>Many</td>
<td>Open</td>
<td>IETF</td>
<td>Success</td>
</tr>
<tr>
<td>SNA/DECnet</td>
<td>Licensed</td>
<td>Closed</td>
<td>None</td>
<td>Few</td>
<td>Closed</td>
<td>None</td>
<td>ISO</td>
<td>Fail</td>
</tr>
<tr>
<td>ISO/OSI</td>
<td>Free</td>
<td>ISO/Limited</td>
<td>Few</td>
<td>Many</td>
<td>Limited</td>
<td>ISO</td>
<td>Fail</td>
<td></td>
</tr>
<tr>
<td>E-Mail</td>
<td>SMTP</td>
<td>Free</td>
<td>RFC / Open</td>
<td>Many</td>
<td>Many</td>
<td>Open</td>
<td>IETF</td>
<td>Success</td>
</tr>
<tr>
<td></td>
<td>X.400</td>
<td>Free</td>
<td>ITU/Limited</td>
<td>Few</td>
<td>Many</td>
<td>Limited</td>
<td>ITU</td>
<td>Fail</td>
</tr>
<tr>
<td></td>
<td>M:Mail / CC:Mail</td>
<td>Licensed</td>
<td>Closed</td>
<td>Few</td>
<td>Closed</td>
<td>None</td>
<td>ISO</td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>SMP/MIME</td>
<td>Free</td>
<td>RFC / Open</td>
<td>Few</td>
<td>Few</td>
<td>Open</td>
<td>IETF</td>
<td>Fail</td>
</tr>
<tr>
<td></td>
<td>PGP</td>
<td>Free</td>
<td>RFC / Open</td>
<td>Many</td>
<td>Few</td>
<td>Open</td>
<td>None</td>
<td>Success</td>
</tr>
<tr>
<td>WWW</td>
<td>HTTP/HTML</td>
<td>Free</td>
<td>RFC / Open</td>
<td>Many</td>
<td>Many</td>
<td>W3/Limited</td>
<td>None</td>
<td>(W3 Later)</td>
</tr>
<tr>
<td>Wireless</td>
<td>LEAP</td>
<td>Free</td>
<td>RFC / Open</td>
<td>Many</td>
<td>Few</td>
<td>Open</td>
<td>None</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>WAP</td>
<td>Licensed/Patented</td>
<td>Self/Limited</td>
<td>Few (More)</td>
<td>Limited</td>
<td>(WAP Forum)</td>
<td>None</td>
<td>?</td>
</tr>
</tbody>
</table>
Form to be filled by a new subscriber

Full Name: 
Postal Address: 

City: State: Zip: Country: 

Phone Number: Fax: 

International Phone Number: 

Pager: 
Requested LSM Nickname: 

Preferred “Reply To” Address: 
Preferred “From” Name: 

LSM Device IP Address: 

To be filled by Neda

Neda Subscriber ID: 

Mohsen BANAN – Neda Communications, Inc. Libre Texting NSF SBIR
U.S. Subscribers (MILLIONS)

SOURCE: Donaldson, Lufkin & Jenrette Securities Corp.
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Mohsen BANAN – Neda Communications, Inc.

Libre Texting NSF SBIR
The Past: WAP Architecture
(a) WAE
   WML
   WSP
   WTP
   WTLS
   WDP

The Present: XHTML
(b) XHTML
   XHTML + LEAP
   HTTP
   EHTD
   ESRO

The Future: XHTML + LEAP
(c) XHTML + LEAP
   TCP
   UDP
<table>
<thead>
<tr>
<th>WhiteBerry Step/Component</th>
<th>Lisa’s Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Select a PDA</td>
<td>Lisa chose to use a HP 660LX palmtop device, running Windows CE 2.0</td>
</tr>
<tr>
<td>2. Select a wireless network</td>
<td>Lisa selected the CDPD network</td>
</tr>
<tr>
<td>3. Select a wireless modem</td>
<td>Lisa selected the Sierra Wireless Aircard 300, a CDPD modem which is compatible with her HP660LX</td>
</tr>
<tr>
<td>4. Select a network Service Provider</td>
<td>Lisa chose AT&amp;T since she resides in Seattle, and AT&amp;T is the CDPD Service Provider for the Seattle area</td>
</tr>
<tr>
<td>5. Activate the modem</td>
<td>Lisa provided AT&amp;T with the modem’s EID (Equipment ID) number, received an IP address from AT&amp;T, then configured the modem to use that address</td>
</tr>
<tr>
<td>6. Download the LEAP device software</td>
<td>Lisa went to the MailMeAnywhere.org website, and downloaded the appropriate Windows CE LEAP software – in this case SH3 Gold Version 1.2</td>
</tr>
<tr>
<td>7. Select a Message Center operator</td>
<td>Lisa set up a free e-mail account for herself atByName.net</td>
</tr>
<tr>
<td>8. Select and install an e-mail forwarder</td>
<td>Lisa used FetchMail and Emacs Lisp code to define her directory and rule-based forwarding preferences</td>
</tr>
</tbody>
</table>
Wireless Mobile Data Market Forecast

SOURCE: the Yankee Group, 1998
Causes for Concern

- Networks are societal resources and their usage model must not be left to free markets and business.
- The mobile Internet is today controlled by large corporations, and critical civil liberties are being compromised.
- Current Copyright and Patent laws are in conflict with nature and are harming humanity.
- As first generation engineers we have a responsibility to safeguard the societal welfare. The goal of this project is to:
Liberate Texting
Texting is Big Business

- Interpersonal communication on the go is the key value proposition for mobile networks
Texting: the Numbers
Sources: (Revenue) IFPI. RIAA; (Top five texters) Ovum, Quantifica
Texting: Future Trends
Sources: Acision; CTIA
A Side-by-Side
Real-World Comparison

- Existing: Mobile Phone Companies

- vs.

- New: Internet + Libre Software + Public Spectrum
Now Let’s Compare

- Coverage
- Speed of delivery
- Ease of use / size / battery
- Cost
- Reliability
- Privacy / health / model
  (to be discussed)

- Texting vs. Libre Texting
- Good Fair
- Good Excellent
Libre Texting:
the Run it Yourself Model

- Device: Get it yourself
  - Hardware platform: Linux PDAs; free market
  - Free/Libre software

- Service: Run it yourself
  - Libre Services

- Network: Own it yourself
Public spectrum, free protocols, free software

Device: Get it Yourself

- Fully integrated; ready to run
  - http://store.neda.com

- Hardware platform
  - Linux PDAs; Nokia 810

- Ready-to-run software
  - http://www.bybinary.org

Service: Run it Yourself

- For the individual
  - http://www.byname.net
  - http://www.byalias.net
Corporate: software + CPE (customer-premises equipment)

http://www.bybinary.org

Corporate: software as service

http://www.ForSMB.net

Network: Own it Yourself

WiFi always used for final-leg device access

WiFi++

Final-leg WiFi + MURS (narrowband)

Final-leg WiFi + WiMax etc. (broadband)

Complete details in Libre Texting with {WiFi++}
http://www.neda.com/PLPC/100027

Note to FCC:
More public spectrum please!
Implementing By* Libre Texting:

**Scenario: WiFi-Only**

1. Buy a Linux PDA, e.g. Nokia 810
2. Load it with mobile texting software

http://www.bybinary.org/
- Or 1 & 2 combined: buy a preconfigured Nokia 810 texting device
  - [http://store.neda.com/](http://store.neda.com/)
- 3. Get a ByName Libre Texting account
  - [http://www.bynameliberate.net/](http://www.bynameliberate.net/)

Implementing By* Libre Texting:
Scenario: WiFi++

- First, steps 1, 2 and 3.
- Then:
  - 4. Buy an MURS radio/modem
  - 5. Activate the modem on Neda mobile network

- Try it!

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Simple and functional

The Many Dimensions of
By* Libre Texting

- Libre Texting: a real-world alternative to texting
- Analysis of the texting medium
- Engineering execution: protocols, software, spectrum
- Libre Services model: philosophy, morality, legality
- By* Libre Texting Services

Business Dimensions

- History

Evaluation, participation, collaboration. Join us!

The Texting Medium:
Now Well Established
- Content: Short text messages
- Expected near-immediate delivery
- Expected immediate alert
- Unconscious carry
- Mobile and always on

**Texting: a Very Simple Application**

- Mobile and wireless network connectivity
- Message submission (sending)
- Message delivery (receiving)
- Message processing (edit, save, reply, mailbox synchronize, etc.)

**Texting: a Very Demanding Application**
- Speed (delivery expectation: less than 10 seconds)
- Network capacity and efficiency (bandwidth)
- Device limitations (battery)
- Reliability (no lost messages)
- Scalability (eventually the whole planet’s population)
- Coverage (eventually everywhere)

The Texting Medium Today:
Owned and Controlled
- Dominated by SMS and BlackBerry
- Based on the phone model
- Inside the phone companies’ walled garden
- Not end-to-end: violates privacy
Distinct from email

Limited choice and non-transparent

The Wireless Service Provider
Controls Everything

- Network Control
- Licensed spectrum Proprietary network
- Owned IP addresses Controlled protocols
- Filtered traffic Walled garden model
- Device Ownership
- Part of the network Selected by provider Heavily patented
- Proprietary software Heavily protected

Our Goal:
Liberate Texting
• Break the phone companies’ hold

• Make texting a Libre Service

• Break the walled garden: make it end-to-end

• Move it to the for-profit, non-proprietary quadrant

• Bring texting into the Internet mainstream

Breaking the Phone Companies’ Hold

• Licensed spectrum Public spectrum: WiFi, MURS

• Closed networks Mobile end-to-end Internet: Mobile-IPv6, public IP address space allocation

• Patented protocols Patent-free protocols: EMSD, IMAP, SMTP

• Closed device paradigm GNU/Linux everywhere
Texting vs. Libre Texting

Today’s Texting
- Closed device model
- Limited applications
- Bundled device + service
- Walled garden Internet
- Little privacy

Advantage: Company

Libre Texting

Linux PDAs
Free/Libre applications

Device modularity: best-of-class choice

End-to-end Internet

Choice of privacy

Advantage: User

The Many Dimensions of Libre Texting

Libre Texting: a real-world alternative to texting

Analysis of the texting medium

Engineering execution: protocols, software, spectrum

Libre Services model: philosophy, morality, legality

By* Libre Texting execution
By* Libre Services Open Business Plan

History

Evaluation, participation, collaboration. Join us!

Execution Strategy

- Non-proprietary: All patent-free and all Copyleft
- For-profit: Fully commercial and fully business oriented
- Collaborative development
- Competitive delivery

Libre Texting: Parts List

- Network
  - Public spectrum (unlicensed)
  - Existing Mobile and wireless networks
Device

- Hardware: Linux PDAs (N-810, Mobile Internet Device)
- Software: Free/Libre -Linux (Maemo, Ubuntu MID)

Server and Service

- Free/Libre server software
- Competitive Libre Texting services

Protocols

- Efficient push-enabled patent-free protocols

Network Connectivity:
WiFi++

- Where there is no WiFi network connectivity,
- use WiFi as a bridge to other network connectivity.
(e.g.) Public MURS: 150 MHz, nationwide

- Narrowband & slow
- Entirely adequate for texting
- Libre Texting with \{WiFi++\}

http://www.neda.com/PLPC/100027

Public IP Address
Internet
WiFi++ Network Overview
Device: Linux PDA
E.g. Nokia 810
Access Point
Mobile Companion
WiFi Only
WiFi++
Base Station
Device: Linux PDA
E.g. Nokia 810
Libre Texting with
WiFi++ and Existing Mobile Networks

- Early Off the shelf example: MiFi

- WiMAX-WiFi++
  - ClearWire Service
  - Linux router laptop with Atheros WiFi Access Point

- MURS-WiFi++
  - Libre MURS Network
  - Linux router laptop with Atheros WiFi Access Point

Libre Texting Device Hardware:
Supported Linux PDAs (2009)
- Nokia 810 (primary)
• ZipIt, etc.

Libre Texting Device Software
• Sophisticated access point detection
• Push delivery (openvpn + neda-emsd-ua.deb)
• Message alert: Texting style
• Mail User Agent (Gnus Emacs, Claws Mail, etc.)
  • Enhanced by texting-mode user interface
• Mail synchronization (offlineimap.deb)

Libre Texting Server Software
• qmail for SMTP, Submit, etc.
• Courier IMAP
• qmail-EMSD
open-vpn server

- Web mail (SquirrelMail)
- etc.

http://www.neda.com/PLPC/110504

Send / Receive Steps

- Mobility
  - Device: Detect and Select an Access Point
  - Device: Establish end-to-end IP connectivity (NAT)
  - Device: Initiate a VPN tunnel Use Permanent Address

- Delivery Push Mail To Device
  - Server: Recognize Device reachability Send EMSD-Deliver
  - Device: Receive with EMSD-UA-Deliver Alert MUA
Submission From Device

- Device: Use EMSD to submit message
- Server: Inject the message into Internet MTS

Efficient Push-Mode Texting Protocols

- SMTP/IMAP/POP/QMTP are non-starters for texting: connection-oriented, verbose and poll-mode. See efficiency comparison, later.

- EMSD: designed for texting, and the only efficient open protocol

- Component oriented

- Texting/email continuum

The Key Requirement: Efficiency

- Minimize number of bytes transferred
Minimize number of transmissions

- (fewer transmissions for lower energy consumption & longer battery life)

Minimize user-experience response time

Minimize code size

Support miniaturized devices

EMSD, SMTP, IMAP, POP

Delivery Comparison: Number of Packets

EMSD, SMTP, IMAP, POP

Delivery Comparison: Number of Bytes

SMTP and EMSD:

Efficiency Comparison

EMSD Internet RFCs

- RFC-2188

Efficient Short Remote Operation (ESRO) Protocol Specification
RFC-2524

EMSDP (Efficient Mail Submission & Delivery Protocol)

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In English Free is ambiguous:
We need the word Libre

Free can mean Libre:
free as in freedom of action

Free can mean Gratis:
free as in zero monetary cost

Nature at work:
Non-material constructs flourish when free from ownership
When we say free we will always mean Libre:
freedom of action
Libre Services
A non-proprietary model for delivery of Internet services

Proprietary vs. Non-Proprietary; Software vs. Services
From Software Wars to Service Wars
Extension of Free Software into Libre Services
Transformation of Free Software into Libre Services

Libre Services: Definitional Criteria

1. The service must consist entirely of open-source & free software components
2. The service must be based entirely on patent-free protocols
3. The integration software must consist entirely of free software
Hence the entire service is reproducible and modifiable based on access to source code

Non-Profit and For Profit:
Roles and Responsibilities
Benefits to Society

- Engineered for the user, not for business
- Civil liberties: services operated by the user, for the user
- Privacy and security
- Service stability and continuity
- Complex integration of user environments with services

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- By* Libre Services Open Business Plan
- History
- Evaluation, participation, collaboration. Join us!
- By* Libre Texting
- Libre Services + By* Family = By* Services
- Libre Texting + By* Services = By* Libre Texting
By* Libre Texting:

- the strategic spearhead for By* Libre Services

By* Libre Texting:
Part of a Bigger Picture

- Texting must be fully integrated into the user’s
- computing and communications environment

By* Libre Services

By* Services Overview
By* Features and Capabilities

- A named entity domain, owned by the entity
- A public website: My Internet
- An expanded website for friends: My Extranet
A private portal: My Intranet

By* Libre Self-Publication Facility

By* Libre Texting

Email, e-fax, etc.

Blog, photo gallery, GeneWeb, etc.

By* Libre Services:
Software Components

Debian GNU/Linux

Base: djbdns, daemontools, ucspi, multilog, etc.

Mail: qmail, courier, spamassassin, ezmlm, etc.

Web: apache, zope, plone, etc.

Misc: postgres, mysql, Interchange, etc.
Glue: Libre Services Integration Platform (LSIP) Service, Desktop, Laptop, PDA Continuum

- Free/Libre everywhere
- Consistent OS: Linux everywhere
- Consistent GUI: Gnome everywhere
- Consistent Applications: Emacs etc., everywhere
- Deep, broad and consistent integration through Free Software and Libre Services

The Libre Texting/Email Continuum

- Not two different things
- Synchronized
- A quick interface for texting
A rich interface for email

The Unix way: components working together

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History

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The Neda Open Business Plan


- Open Business Plan: available to all

- Broad audience: engineers, academics, investors

- Jujitsu on patents and copyright

- Engineers start here:
  - [http://www.neda.com/StrategicVision/Participating/Engineering](http://www.neda.com/StrategicVision/Participating/Engineering)

- Investors start here:
  - [http://www.neda.com/StrategicVision/Participating/Investment/StartHere](http://www.neda.com/StrategicVision/Participating/Investment/StartHere)
For Profit and Non-Proprietary: the Right Paradigm for Non-Material Constructs
From Free Software to Libre Services with a Clear Revenue Model
Transformation of software into services
Proprietary software
Free software
Execution and Revenues:
Clear and Straightforward

- Execution

- Device: Linux PDAs, in place

- Service: By*, in place

- Mobile network: in place

- Revenues
Individual:
subscription

- Software: Libre/Free, in place
- Public spectrum: in place
- Plan: Well developed, in place
- Vertical integration

- Products:
  CPE+service

- Corporate:
  software as service

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History

We’ve been at this a very long time:

CDPD and LSM (1994)

pACT (1996)
RFC-2188 (1998), and RFC-2524 (1999)

The WAP Trap (2000)

Operation WhiteBerry (2001)

The LEAP Manifesto (2001)

Libre Services Strategic Vision (2007)

By* Libre Texting (2009)

AT&T pACT Revisited 12 Years Later

- Spectrum: 2 *50/50 kHz paired $160 million
- Devices: PCSI, etc. $20 million
- Message Center, Net, Air Link $60 million

Development abandoned in 1997. Total cost: $240 million
AT&T pACT

- Spectrum: WiFi & MURS (public) $0
- Devices: Nokia 810, ZipIt $0
- qmail, mobile-ip, emsd (free software) $0
- All you need to do is integrate it $4 million
- Total cost: $4 million

Libre Texting

Evolution of Operation WhiteBerry into Libre Texting

- Operation WhiteBerry

http://www.freeprotocols.org/PLPC/100006

- Had several external dependencies:
1. Closed and limited network
2. Closed proprietary devices
3. Entry into walled gardens

Ten Years Later

1999
- Licensed spectrum
- Few closed networks
- Closed devices
- Little Libre software
- Walled garden

2009
Public spectrum

Many open networks

Devices opening up

A lot of Libre software

Awareness of the harm

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By* Libre Texting execution

Mohsen BANAN – Neda Communications, Inc.  Libre Texting NSF SBIR
By* Libre Services Open Business Plan

History

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This is big and we are small, but lots is in place

- EMSD protocols

- By* Libre Services

- Leadership of the Libre Services movement

- Fully committed to Libre: GNU/Linux everywhere

- Our own Data Center: LibreCenter.net

- Our own wireless network (MURS, WiFi)

- Well-developed Business Plan
For you to Evaluate:
All our Cards on the Table

- Open Business Plan 2009 By* Libre Services
- Libre Services Manifesto PLPC-100105
- By* full documentation PLPC-110004
- Unsolicited Proposal PLPC-110005
- By* Libre Texting PLPC-110012
- Operation Whiteberry PLPC-100006
- LEAP Manifesto PLPC-100012

Join Us!
Make it Happen in a Big Way

- Engineering community: Ideas, code, integration
Business community: Buy into the Libre model, take the code, partner up, deploy the services

Investment community: Financing

Academic community: Ideas, code, integration, analysis, discussion

Funding NGOs: Grants

Government: Grants

Society: Usage, testing, dialogue, awareness

Media: Articles, analysis, discussion

Current Active Projects

Sophisticated access point selection

Qmail/EMSD integration
- Mail alert
- Linux PDA ports: Android, ZipIt
- EMSD and ESRO enhancements
- Texting GUI
- Mobile IP
- Public spectrum AirLink