

# By\* Libre Texting

## A Reshaping of the Medium

<http://www.neda.com/PLPC/110012>

Mohsen BANAN—<http://mohsen.banan.1.byname.net/>  
Free Protocols Foundation—<http://www.freeprotocols.org/>  
Neda Communications, Inc.—<http://www.neda.com/>

# 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*

**Neda Open Business Plan**  
**The By\* Family of Libre Services**

Neda Asset
Libre Service
Free Software
FPF Resource

**Neda LibreCenter**

**Neda By\***  
**Mobile Overlay Networks**

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

**By\* Family of Libre Services**

**ByInteractions**

**By\***  
**Libre Texting**

**ByEvent, ByTopic, ...**

**Libre Efficient**  
**Application Protocols**  
**(LEAP)**

**ByWhere**

**BySMB**

**ForSMB**

**ByName**  
**ByAlias**  
**ByMemory**  
**ByFamily**

**Libre Collaborative**  
**Mobile Overlay**  
**Networks (CMON)**

**Libre Services Integration Platform (LSIP)**

**BySource.org**

**ByBinary.org**

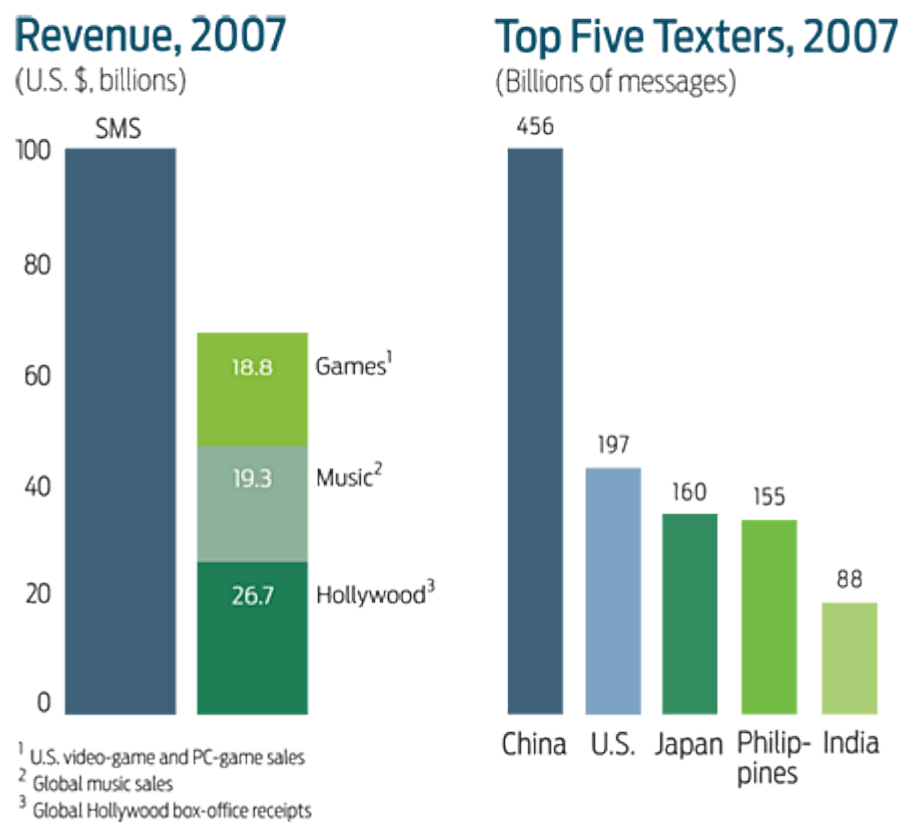
**Free Protocols Foundation**

Context within The Big Picture

# Texting is Big Business

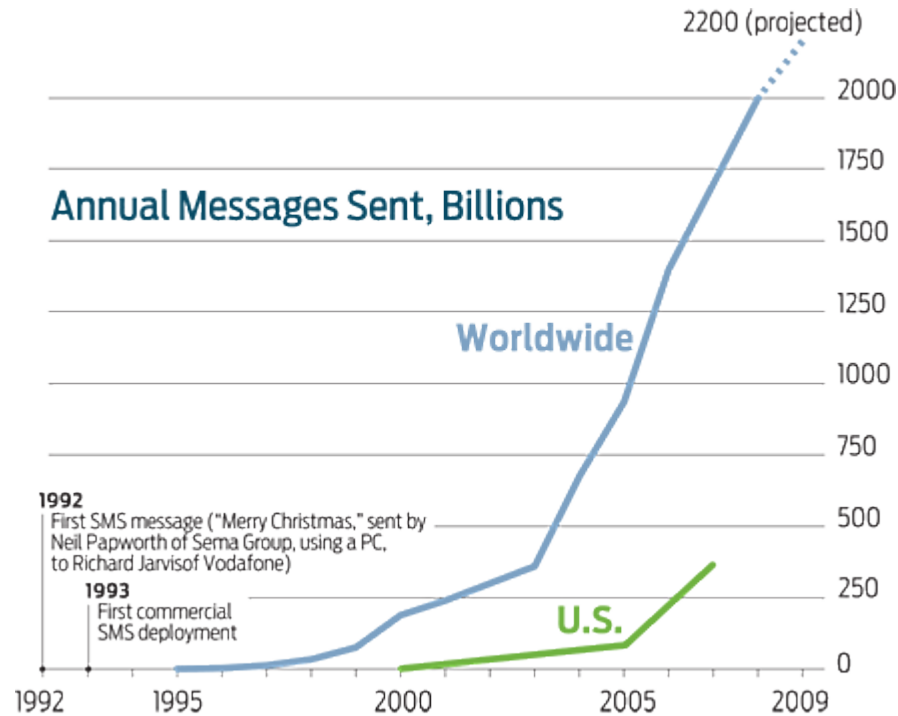
Interpersonal communication *on the go* is the key value proposition for mobile networks

# Texting: the Numbers



Sources: (Revenue) IFPI. RIAA; (Top five texters) Ovum, Quantifica

# Texting: Future Trends



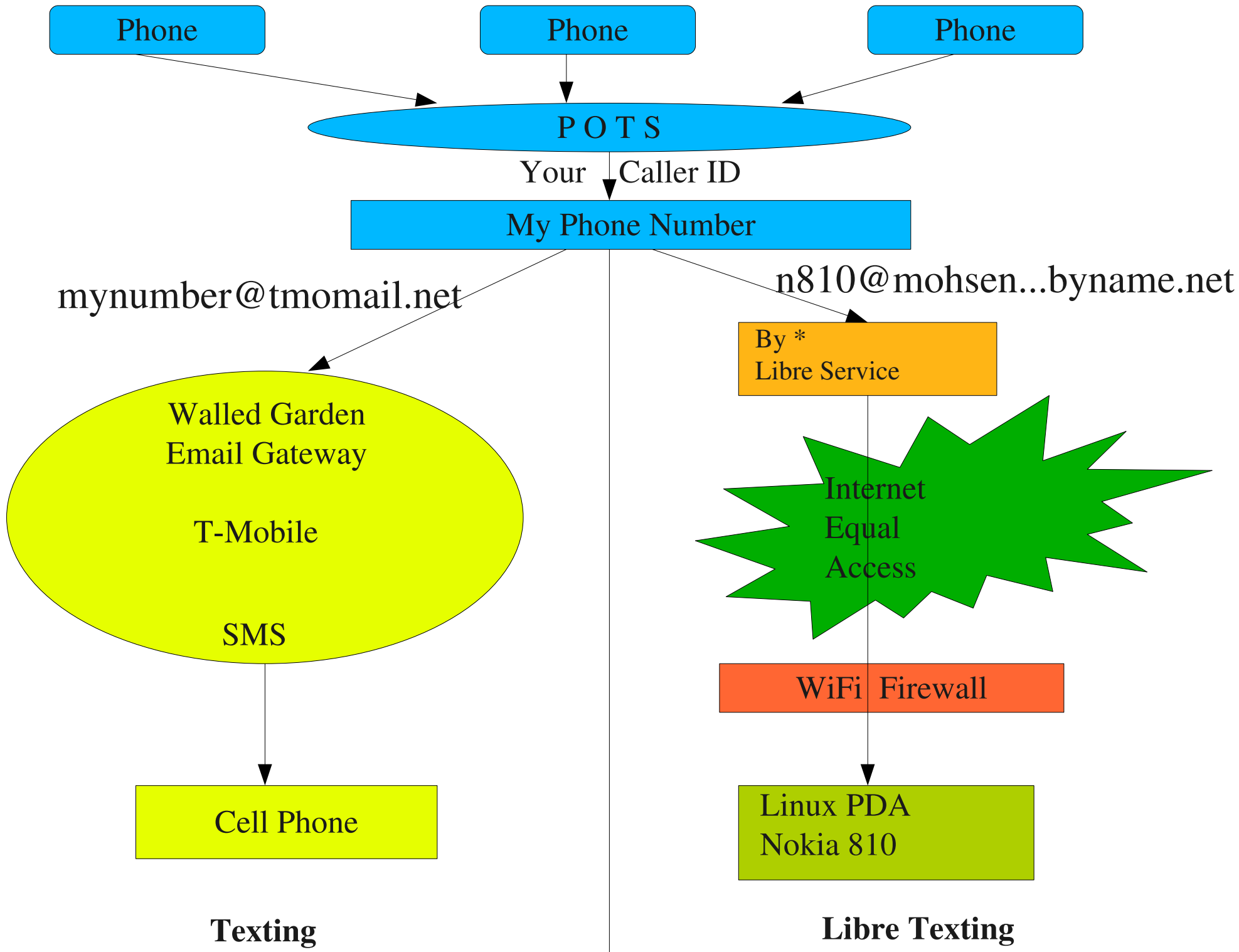
Sources: Acision; CTIA

# A Side-by-Side Real-World Comparison

*Existing:* Mobile Phone Companies

VS.

*New:* Internet + Libre Software + Public Spectrum





# Ready, Set... Go!

1. Enable your caller ID
2. Dial 425-644-8026
3. Let it ring 3 times
4. Hang up

Two simultaneous text messages  
containing your caller ID are sent:

1. To phone (SMS)  
[mynumber@tmomail.net](mailto:mynumber@tmomail.net)
2. To Linux PDA (EMSD)  
[n810@mohsen...byname.net](mailto:n810@mohsen...byname.net)

# Now Let's Compare

## **Texting** vs. **Libre Texting**

Coverage

*Good*

*Fair*

Speed of delivery

*Good*

*Excellent*

Ease of use / size / battery

*Good*

*Good*

Cost

*Low*

*Lower*

Reliability

*Good*

*Good*

Privacy / health / model  
(to be discussed)

*(Poor)*

*(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>

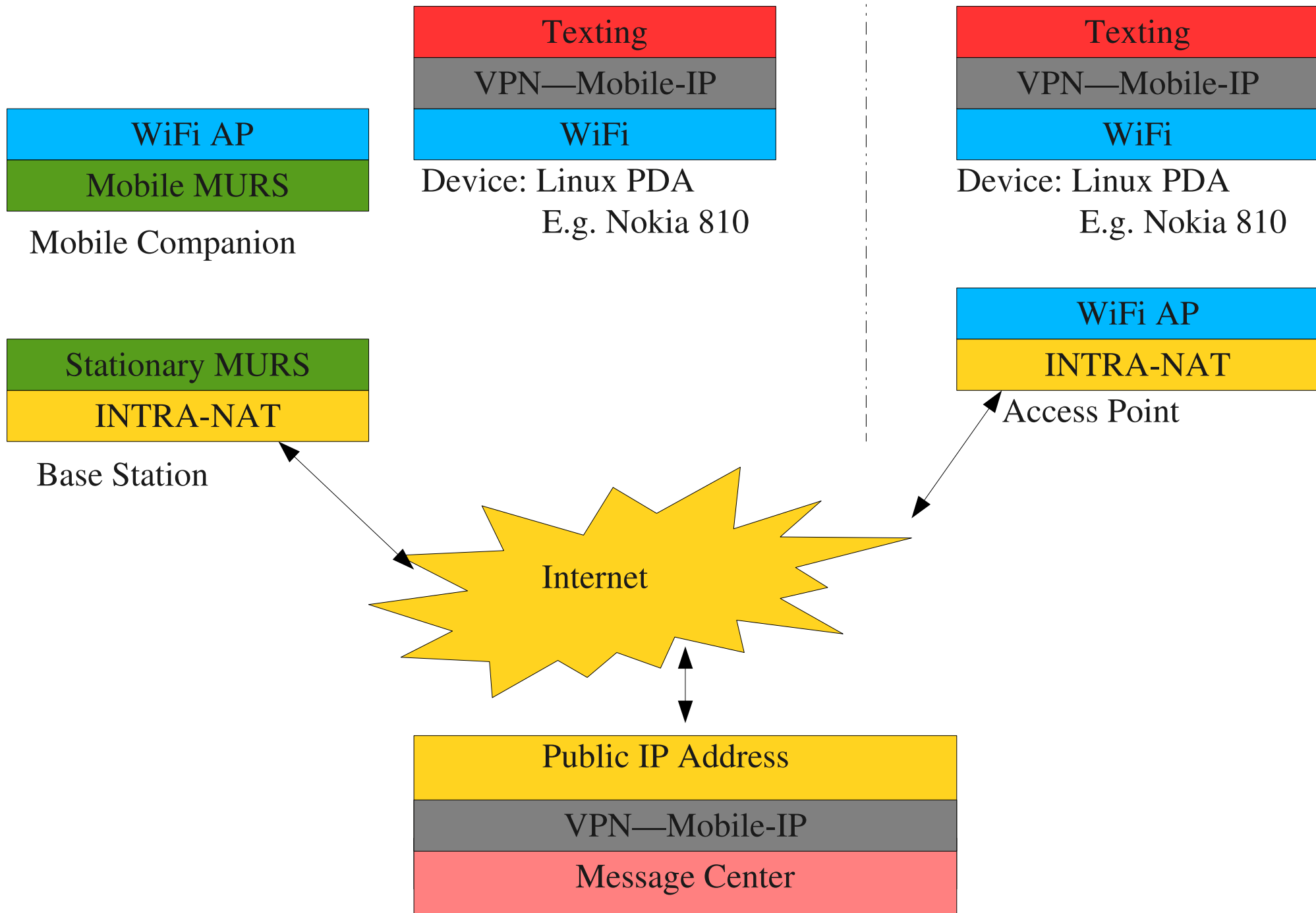
# Network: Own it Yourself

- 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!*

# WiFi++

# WiFi Only



**WiFi++ Network Overview**

# 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/>
3. Get a ByName Libre Texting account
    - <http://www.byname.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!*

*Simple and functional*

# The Many Dimensions of By\* Libre Texting

- Libre Texting: a real-world alternative to texting
- *Analysis of the texting medium*
- Libre Texting and Libre Services
- By\* Libre Texting execution:
  - protocols, software, spectrum, service
- By\* Libre Services Open Business Plan
- 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

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

# Texting: a Very Demanding Application

1. Speed (delivery expectation: less than 10 seconds)
2. Network capacity and efficiency (bandwidth)
3. Device limitations (battery)
4. Reliability (no lost messages)
5. Scalability (eventually the whole planet's population)
6. 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
- Owned IP addresses
- Filtered traffic
- Proprietary network
- Controlled protocols
- Walled garden model

## **Device Ownership**

- Part of the network
- Selected by provider
- Heavily patented
- Proprietary software
- Heavily protected

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# 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*
- Walled garden applications → *End-to-end services*

# 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

# Definition of Libre Texting

- Libre Texting Service Definition
  - Unconscious carry, mobile, always on
  - Immediate delivery (push), immediate alert, urgent
  - Extension of Internet Email for Short Text Messages
  
- Libre Texting Model Definition
  - Based on patent free-protocols
  - Based on pure free software device
  - Delivered as a Libre Service

# Libre Texting Definition

## Not a Specific Implementation

- Any patent-free protocol that can provide Libre Texting Services
- Free Software implementation of protocols
- Any Free Software Device Platform
- Any Free Software Server Platform
- Any Libre Service

# 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*

When we say “free” we will always mean Libre:  
*freedom of action*

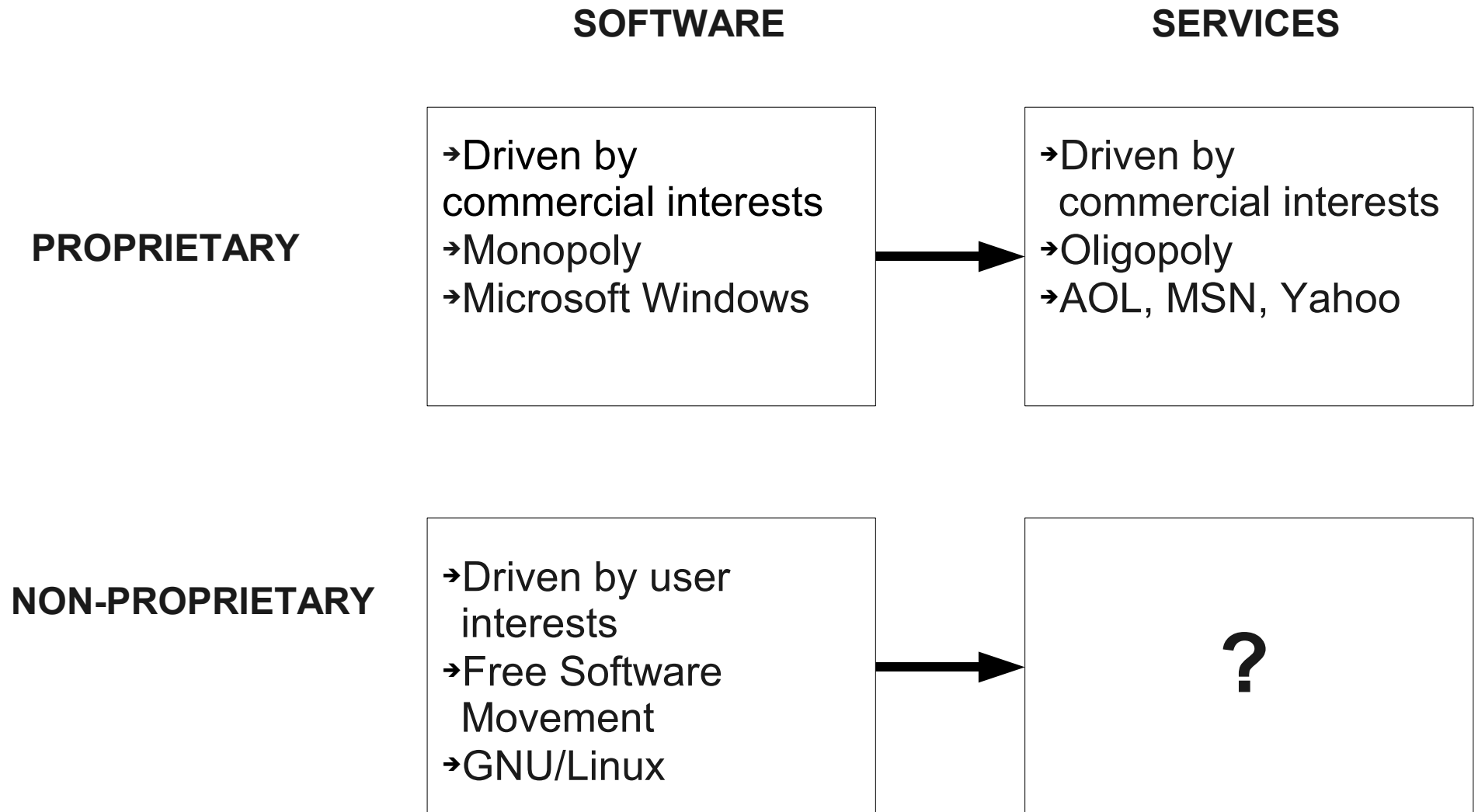
Nature at work:

*Non-material constructs flourish when free from ownership*

# Libre Services

*A non-proprietary model  
for  
delivery of Internet services*

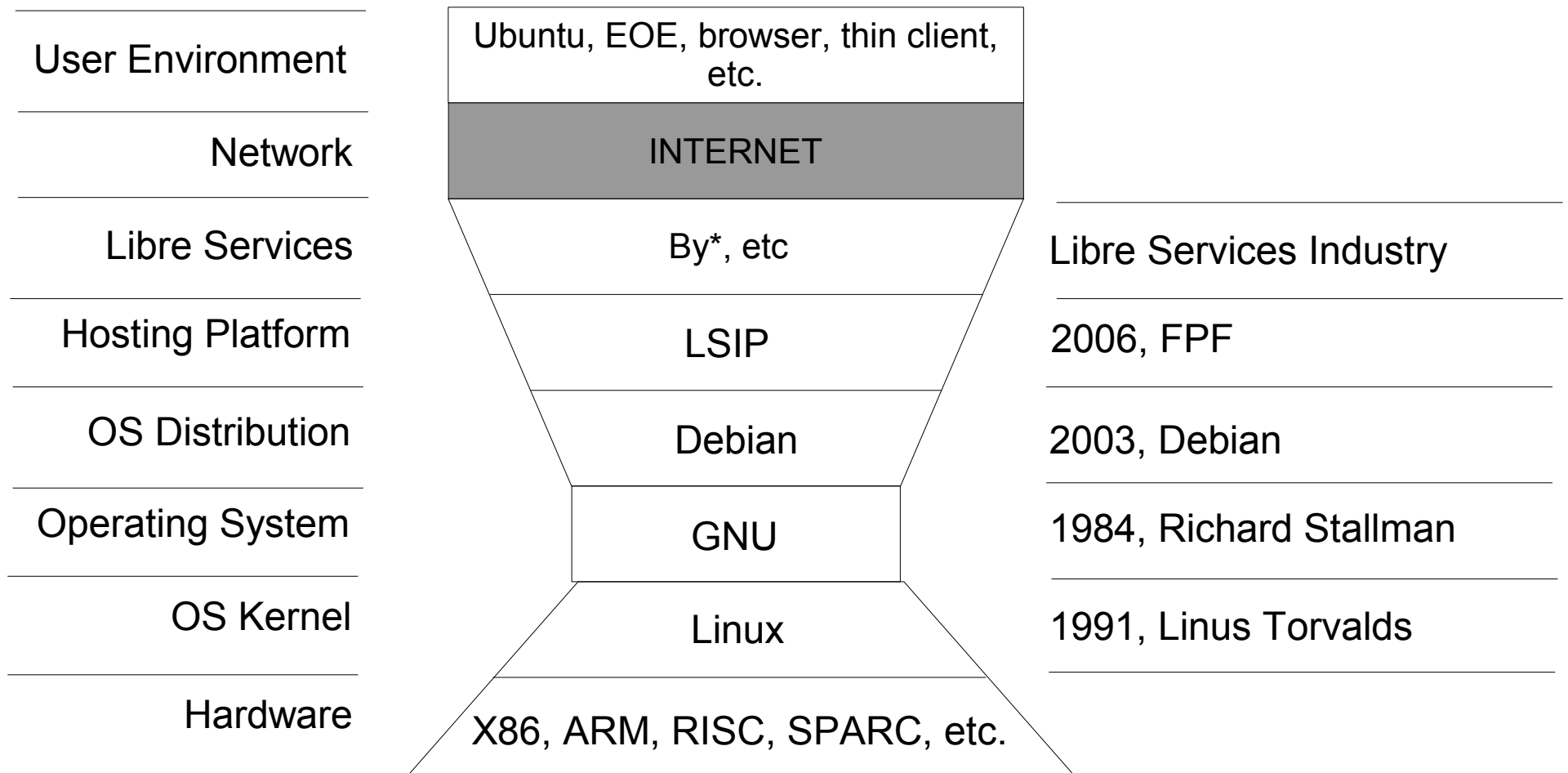
# Proprietary vs. Non-Proprietary; Software vs. Services



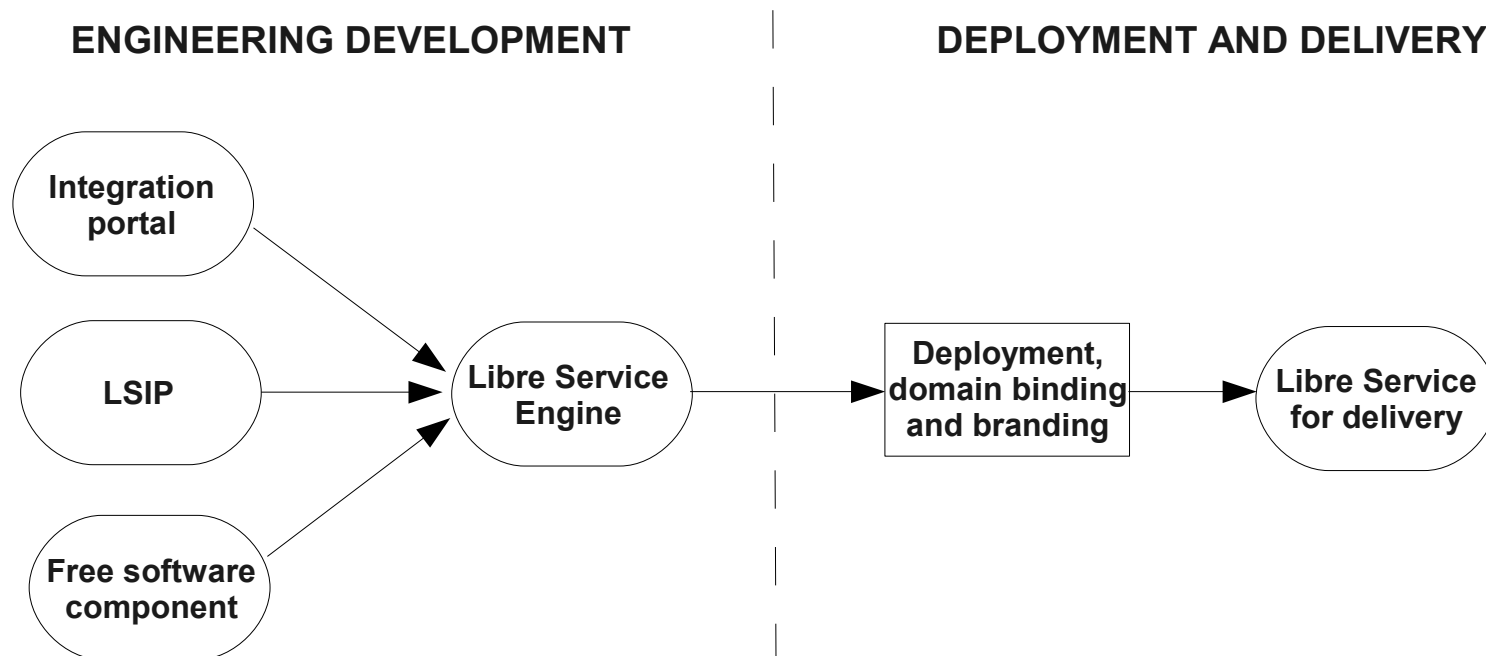




# Extension of Free Software into Libre Services



# Transformation of Free Software into Libre Services

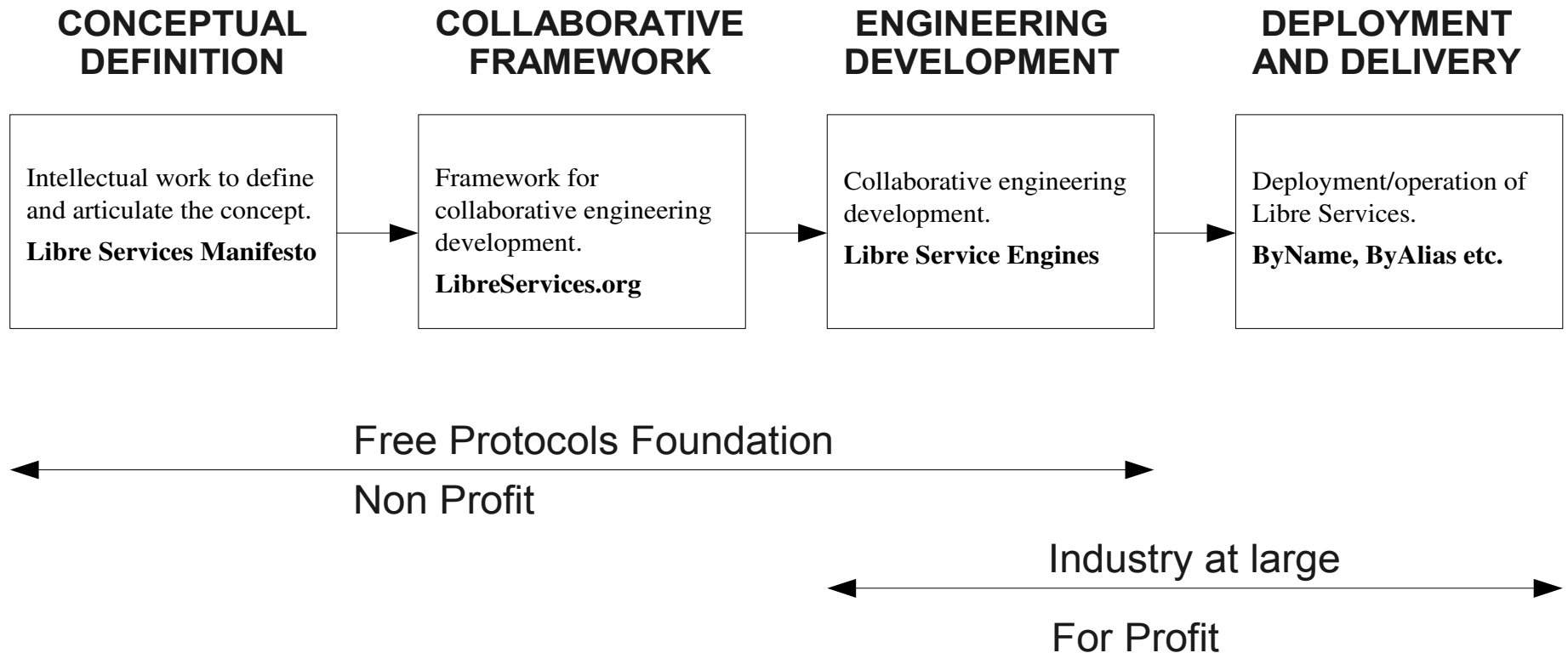


# Libre Services: Definitional Criteria

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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# The Time Is Right

## Enablers Are In Place

- WiFi is now widespread for final-leg device connectivity
- Wide-area networks in place for second-to-last-leg, wide-area wireless connectivity
- Mature and sophisticated Linux-based PDAs
- Open, patent-free protocols exist for wireless messaging.
- Free Software device and server implementations
- The eventual transition to IPv6 will allow restoration of the true mobile Internet end-to-end model



# Execution Strategy

## By\* Libre Texting

- 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++

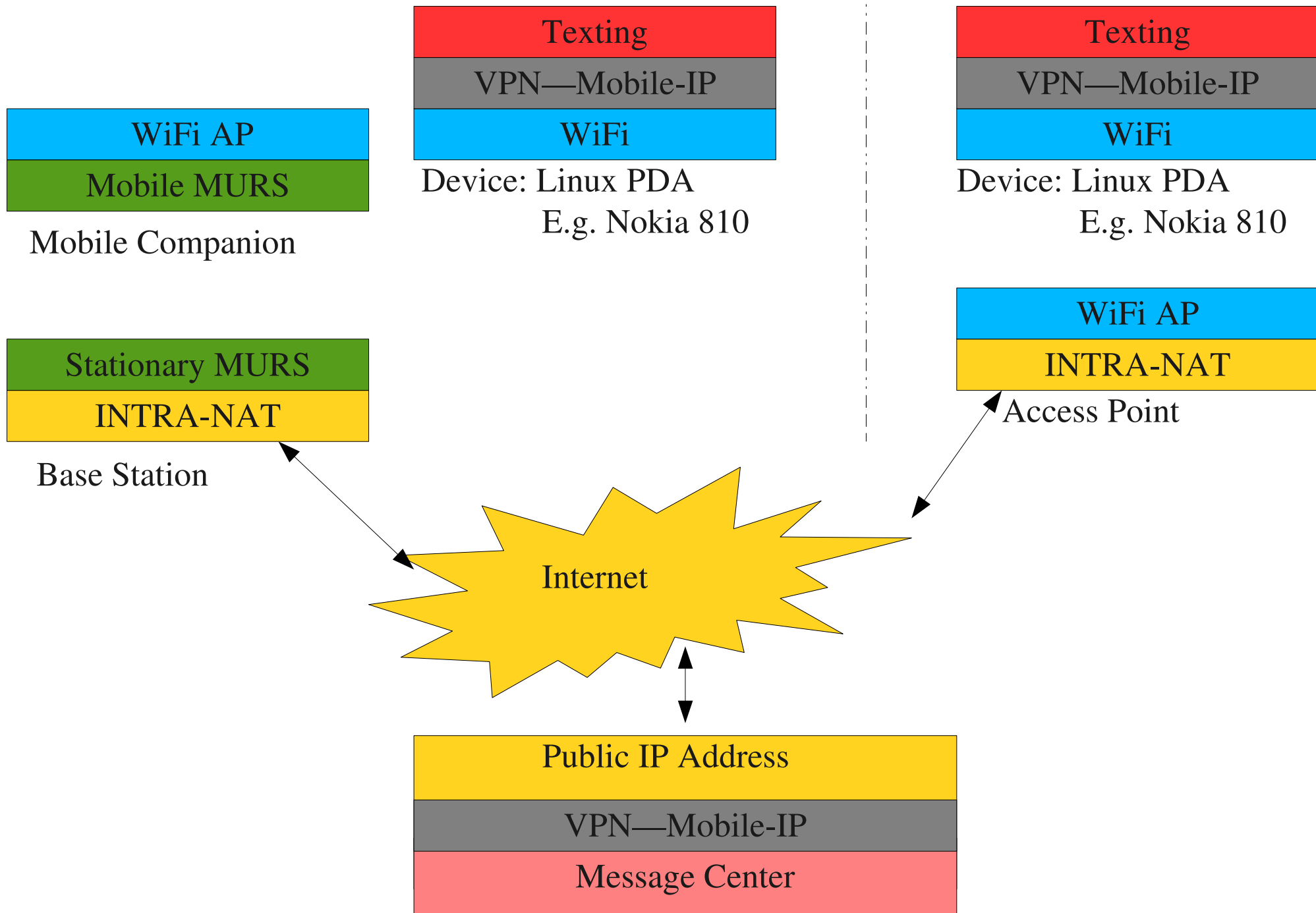
Where there is no WiFi network connectivity,  
use WiFi as a bridge to other network connectivity.

- (e.g.) Public MURS: 150 MHz, nationwide
  - Narrowband & slow
  - Entirely adequate for texting

Libre Texting with {WiFi++}  
<http://www.neda.com/PLPC/100027>

# WiFi++

# WiFi Only



**WiFi++ Network Overview**

# 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

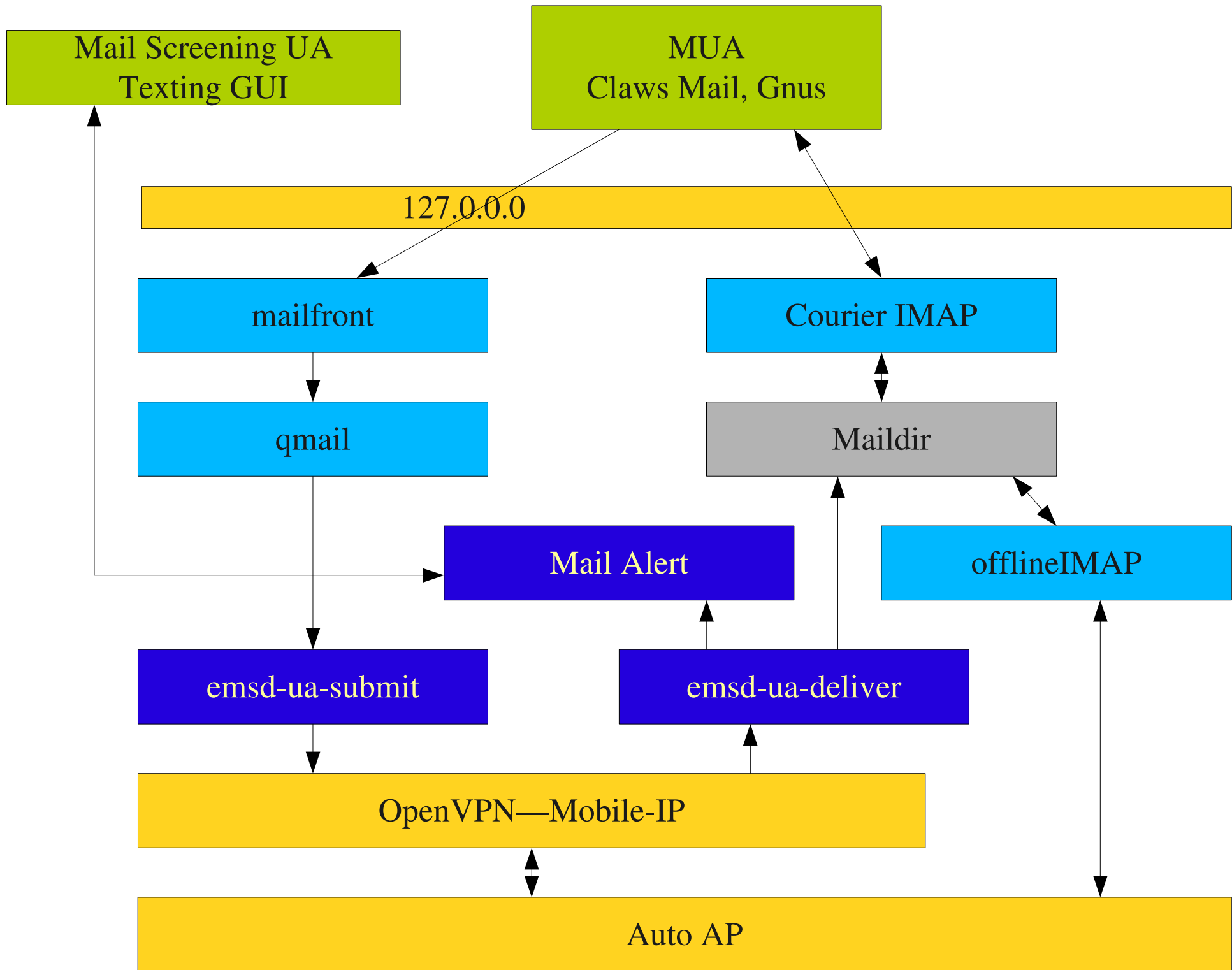
# Libre Texting Device Hardware: Supported Linux PDAs (2009)

- Nokia 810 (primary)
- Ziplt, 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)

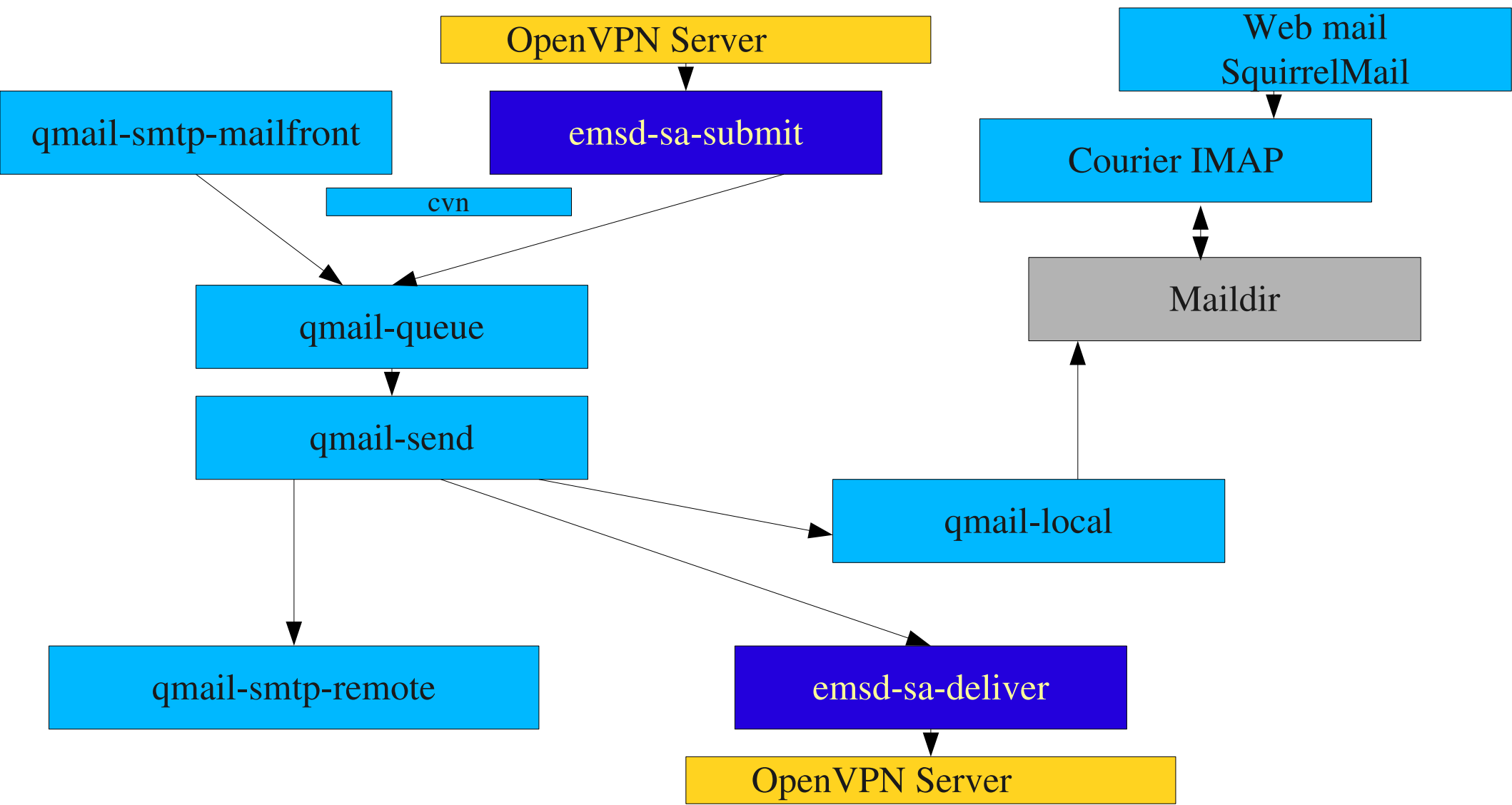




# Libre Texting Server Software

- qmail for SMTP, Submit, etc.
- Courier IMAP
- qmail-EMSD
- open-vpn server
- Web mail (SquirrelMail)
- etc.

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



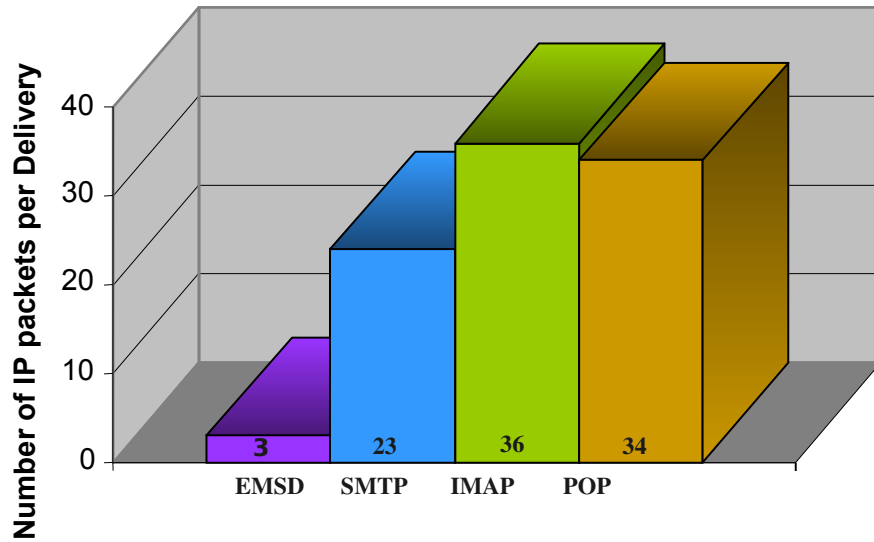
# Send / Receive Steps

- 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

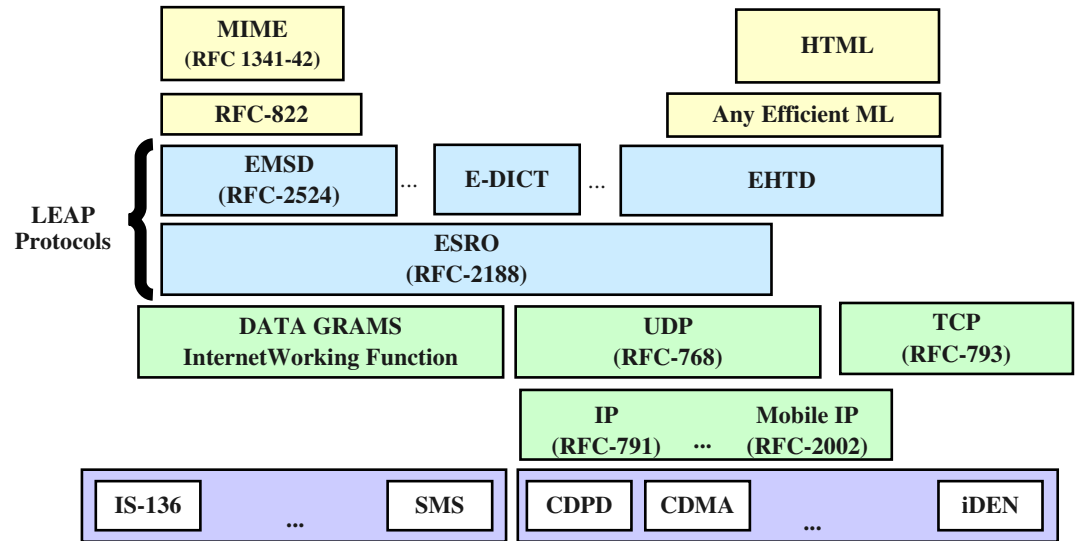
# What is EMSD?



**Bandwidth Efficiency**

- **Efficiency Benefits:**

- Efficient use of carrier network
- Lower costs per minute of use
- Longer battery life
- Reduced latency for user access



**LEAP is a family of protocols:**

- **ESRO: Efficient Short Remote Operations**
- **EMSD: Efficient Mail Submission & Delivery**
- **EHTD: Efficient Hyper Text Delivery (in progress)**
- ...

- **Technical Attributes:**

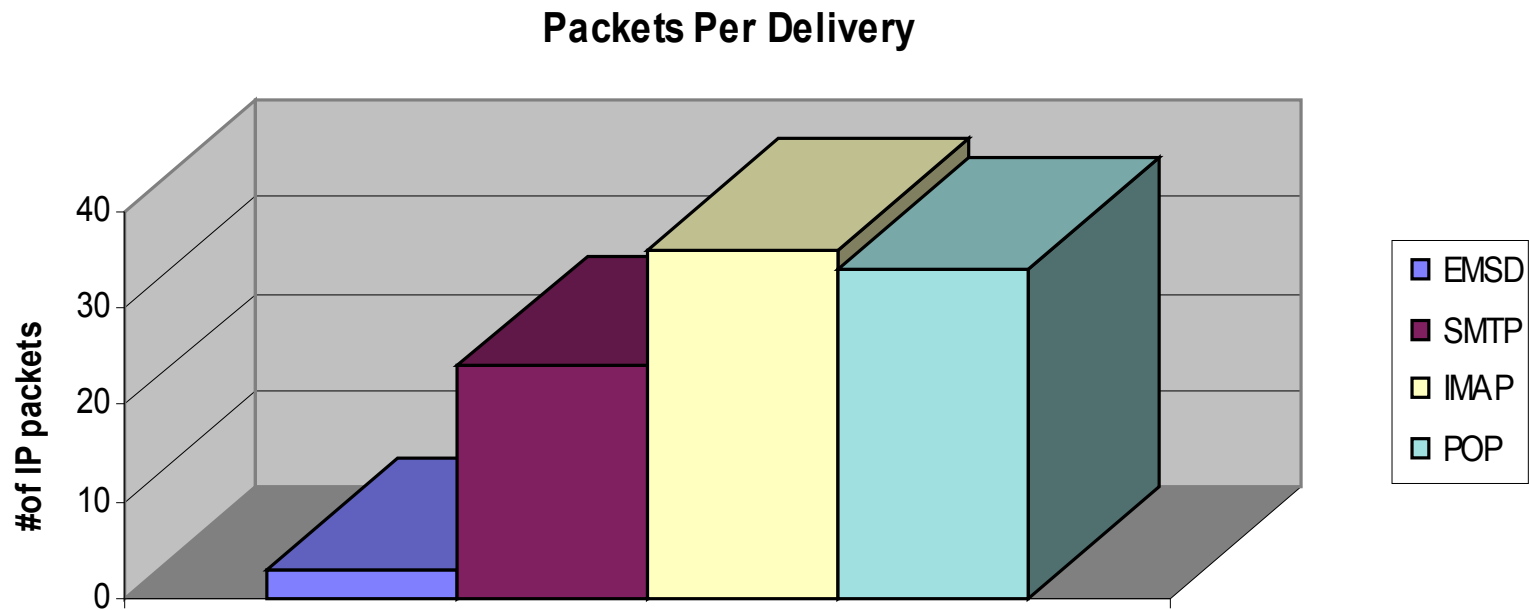
- Technical excellence
- Ideal for wireless & mobile applications
- Native IP & wireless-IP
- Truly open & patent-free
- RFC published

# 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

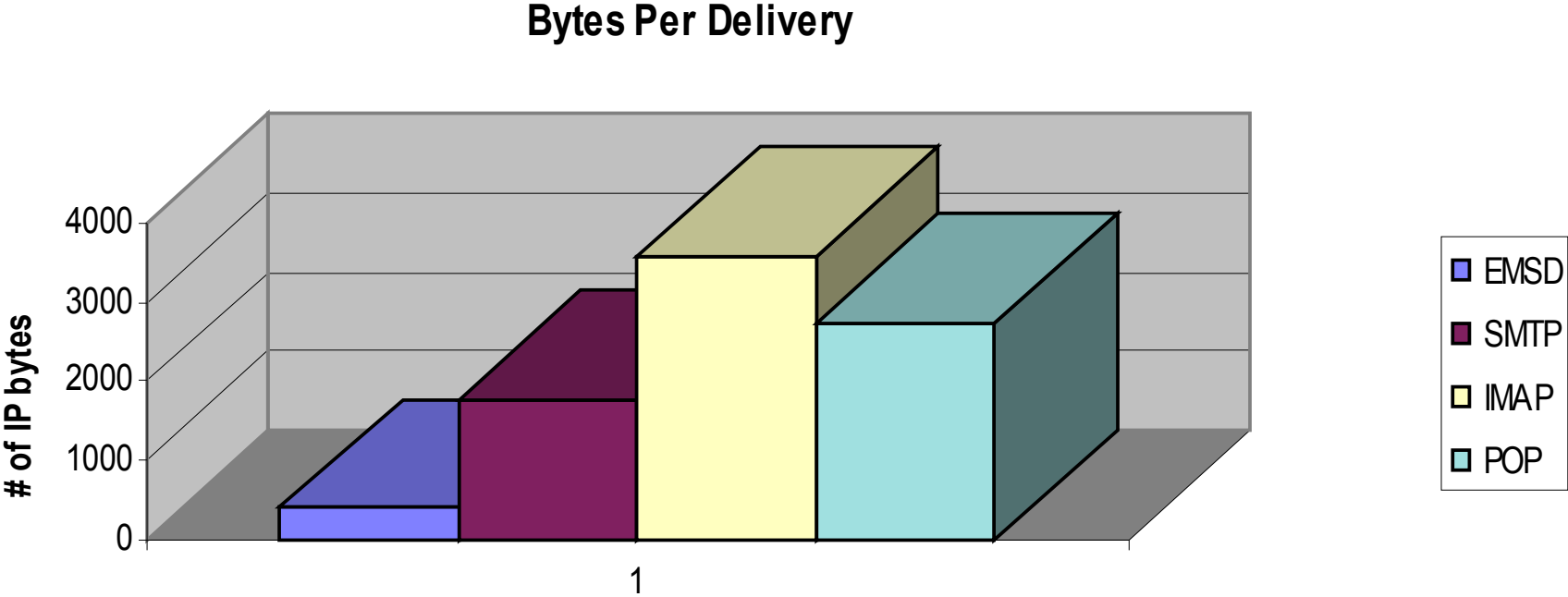
# EMSD, SMTP, IMAP, POP

## Delivery Comparison: Number of Packets



# EMSD, SMTP, IMAP, POP

## Delivery Comparison: Number of Bytes





# SMTP and EMSD: Efficiency Comparison

	SMTP	SMTP+ Pipelining	QMTP, QMQP	EMSD
<b>client</b>	SYN	SYN	SYN	Submit.Req
<b>server</b>	SYN ok	SYN ok	SYN	Submit.Resp
<b>client</b>	HELO	HELO	message	ack
<b>server</b>	ok	PIPELINING	accept close	
<b>client</b>	MAIL	MAIL RCPT DATA	close	
<b>server</b>	ok	ok		
<b>client</b>	RCPT	message QUIT		
<b>server</b>	ok	accept ok close		
<b>client</b>	DATA	close		
<b>server</b>	ok			
<b>client</b>	message			
<b>server</b>	accept			
<b>client</b>	QUIT			
<b>server</b>	ok close			
<b>client</b>	close			

# EMSD Internet RFCs

- RFC-2188

Efficient Short Remote Operation (ESRO) Protocol Specification

- Maintenance Organization: <http://www.esro.org>
- Software: <http://www.bysource.org>

- RFC-2524

EMSDP (Efficient Mail Submission & Delivery Protocol)

- Maintenance Organization: <http://www.emsd.org>
- Software: <http://www.bybinary.org>

# The Many Dimensions of By\* Libre Texting

- Libre Texting: a real-world alternative to texting
- Analysis of the texting medium
- Libre Texting and Libre Services
- *By\* Libre Texting execution:*
  - protocols, software, spectrum, *service*
- 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

Service Type	Service Name	Description
For business	<a href="http://www.BySMB.com">www.BySMB.com</a> <a href="http://www.ForSMB.com">www.ForSMB.com</a>	Internet services for small-to-medium businesses.
For individuals	<a href="http://www.ByName.net">www.ByName.net</a> <a href="http://www.ByName.com">www.ByName.com</a>	ByName provides a complete set of Internet services for the individual user.
	<a href="http://www.ByNumber.net">www.ByNumber.net</a> <a href="http://www.ByNumber.com">www.ByNumber.com</a>	A similar set of services to ByName, but based on a numerical ID assigned to the user instead of the user's name.
	<a href="http://www.ByAlias.net">www.ByAlias.net</a> <a href="http://www.ByAlias.net">www.ByAlias.net</a>	A similar set of services to ByName, but based on an alias instead of the user's real name.
	<a href="http://www.ByMemory.net">www.ByMemory.net</a> <a href="http://www.ByMemory.com">www.ByMemory.com</a>	Services for preserving the memory of deceased persons.
For places and events	<a href="http://www.ByWhere.net">www.ByWhere.net</a>	Services relating to physical locations.
	<a href="http://www.ByEvent.net">www.ByEvent.net</a>	Services relating to events.
For information	<a href="http://www.ByTopic.net">www.ByTopic.net</a>	Services for publication of information organized by topic
For making things happen!	<a href="http://www.ByInteraction.net">www.ByInteraction.net</a>	ByInteraction enables transactions involving persons, business, places and things.

# 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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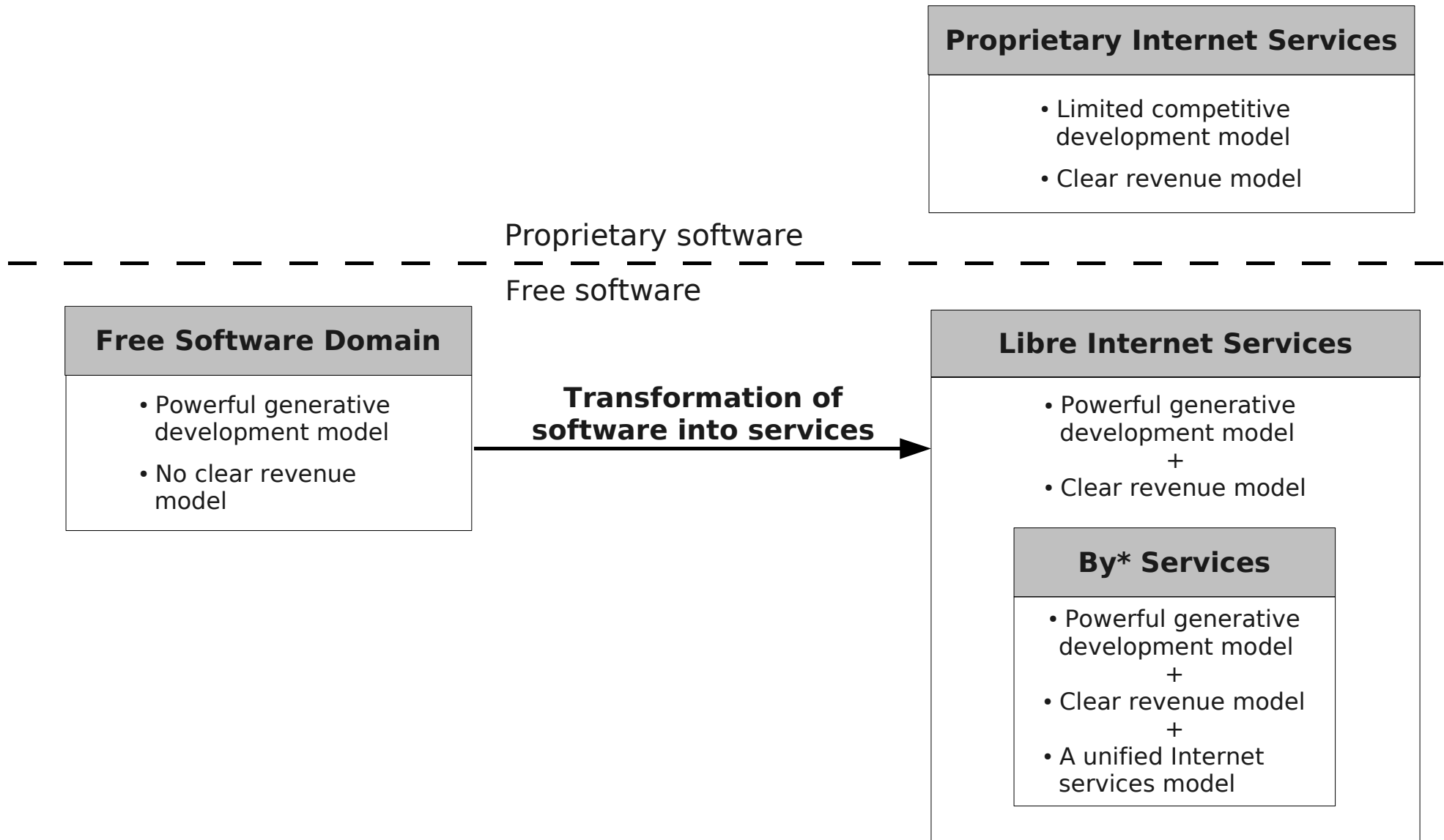
# The Neda Open Business Plan

- <http://www.neda.com/StrategicVision/BusinessPlan>
- 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>
- Investors start here:  
<http://www.neda.com/StrategicVision/Participating/Investment/StartHere>

# For Profit and Non-Proprietary: the Right Paradigm for Non-Material Constructs

	For Profit	Non-Profit	
Proprietary Model	Traditional: Microsoft AOL Yahoo	Conflicted: Academics Wap Forum ...	Copyright Patents Secrecy
Non-Proprietary Model	New: Free Software Bus Redhat, ...  Libre Services Bus Neda, ....	Traditional:  FSF IETF FPF	Copyleft Knowledge Sharing Openness
	Pro-Business	Pro-Public	

# From Free Software to Libre Services with a Clear Revenue Model



# Execution and Revenues: Clear and Straightforward

## *Execution*

- Device: Linux PDAs, *in place*
- Service: By\*, *in place*
- Mobile network: *in place*
- Software: Libre/Free, *in place*
- Public spectrum: *in place*
- Plan: Well developed, *in place*

## *Revenues*

- Individual: subscription
- Corporate: software as service
- Products: CPE+service
- Vertical integration

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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

AT&T  
pACT

- 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*

Libre  
Texting

- 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*

# 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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# 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

# Neda By\* Open Business Plan – PLPC-110002

Texting

By\* Libre  
Texting  
Service

By\* Libre  
Texting  
Device

Google  
Yahoo  
MSN

By\*  
ByName, ByAlias  
ByMemory, BySMB

By\*  
Gnome  
EOE

By\*  
PDA  
Env

ByEntity/By\* Libre Engine  
PLPC-110502

By\*Libre  
User Environment

By\* Libre Services -- PLPC-110001

Libre Services Integration Platform PLPC-110501

Libre Platform Genesis Process PLPC-110101

Libre Services -- PLPC-100102

Microsoft  
Windows

Maemo

Ubuntu

Debian

Debian GNU/Linux Packages

GNU/Linux

Non-Free

Free Software

**Neda Open Business Plan**  
**The By\* Family of Libre Services**

Neda Asset
Libre Service
Free Software
FPF Resource

**Neda LibreCenter**

**Neda By\***  
**Mobile Overlay Networks**

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

**By\* Family of Libre Services**

**ByInteractions**

**By\***  
**Libre Texting**

**ByEvent, ByTopic, ...**

**Libre Efficient**  
**Application Protocols**  
**(LEAP)**

**ByWhere**

**BySMB**

**ForSMB**

**ByName**  
**ByAlias**  
**ByMemory**  
**ByFamily**

**Libre Collaborative**  
**Mobile Overlay**  
**Networks (CMON)**

**Libre Services Integration Platform (LSIP)**

**BySource.org**

**ByBinary.org**

**Free Protocols Foundation**

Context within The Big Picture