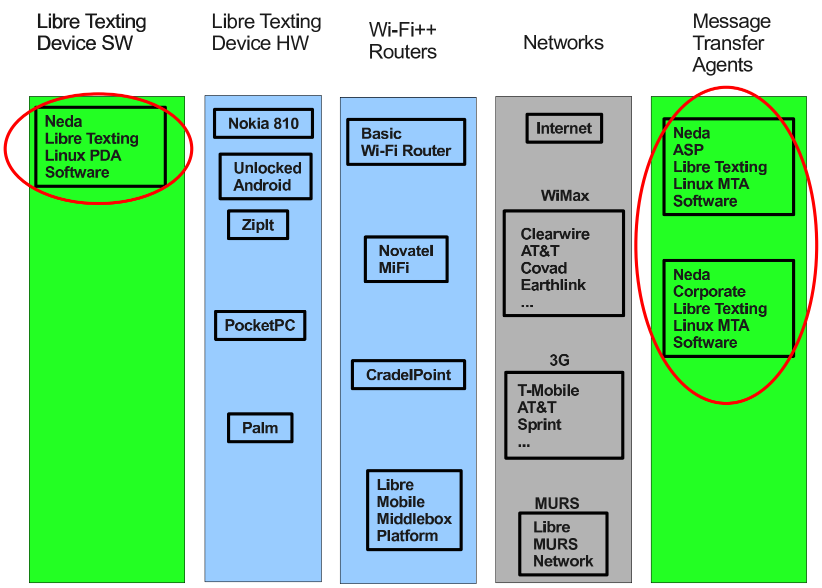
Libre Texting
NSF SBIR
A Proposal

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

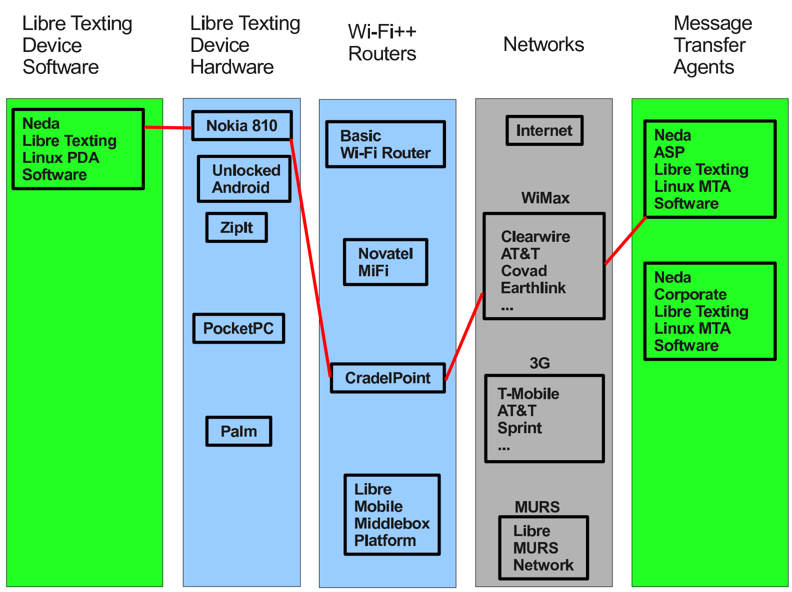
Neda Communications, Inc.
http://www.neda.com

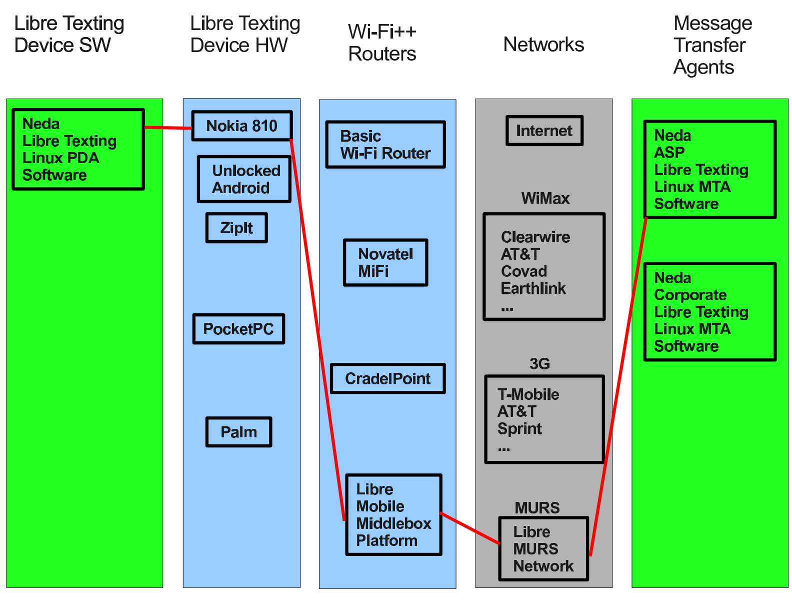
April 2009
http://www.neda.com/PLPC/100109

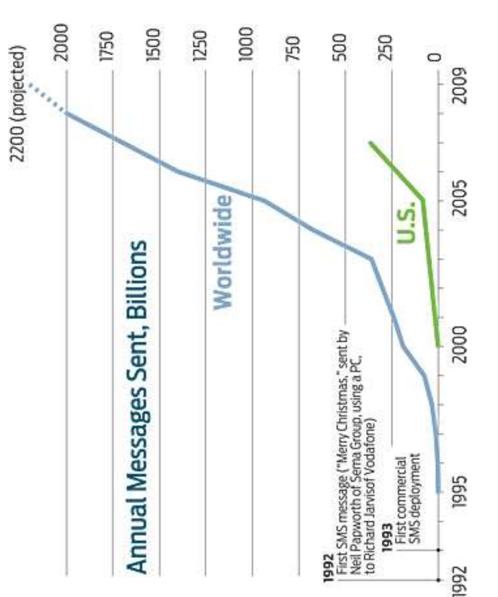
Varbatim Copying Permitted

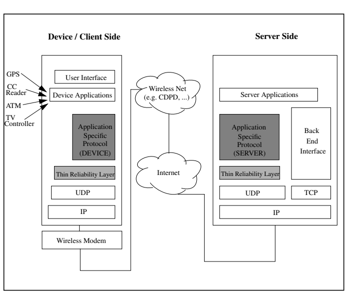


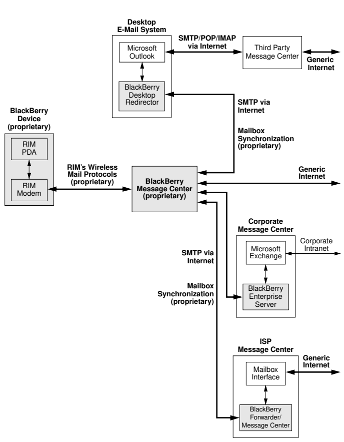
Libre Texting Parts


Libre Texting Device Software
Libre Texting Device Hardware
Wi-Fi++ Routers
Networks
Message Transfer Agents
Neda Libre Texting Linux PDA Software
Nokia 810
Unlocked Android
ZipIt
PocketPC
Palm
Basic Wi-Fi Router
Novatel MiFi
CradelPoint
Libre Mobile Middlebox Platform
Internet
WiMax
Clearwire AT&T Covad Earthlink ...
3G
T-Mobile AT&T Sprint ...
MURS
Libre MURS Network
Neda ASP Libre Texting Linux MTA Software
Neda Corporate Libre Texting Linux MTA Software

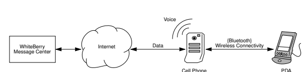

Libre Texting
Device SW
Libre Texting
Device HW
Wi-Fi++
Routers
Networks
Message
Transfer
Agents
Neda
Libre Texting
Linux PDA
Software
Nokia 810
Unlocked
Android
ZipIt
PocketPC
Palm
Basic
Wi-Fi Router
Novatel
MiFi
CradelPoint
Libre
Mobile
Middlebox
Platform
Internet
WiMax
Clearwire
AT&T
Covad
Earthlink
...
3G
T-Mobile
AT&T
Sprint
...
MURS
Libre
MURS
Network
Neda
ASP
Libre Texting
Linux MTA
Software
Neda
Corporate
Libre Texting
Linux MTA
Software

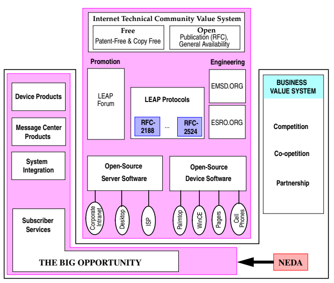

Annual Messages Sent, Billions
Worldwide
U.S.
2200 (projected)
2000
1750
1500
1250
1000
750
500
250
0
1992
1995
2000
2005
2009
1992
First SMS message ("Merry Christmas," sent by Neil Papworth of Sema Group, using a PC, to Richard Jarvis of Vodafone)
1993
First commercial SMS deployment

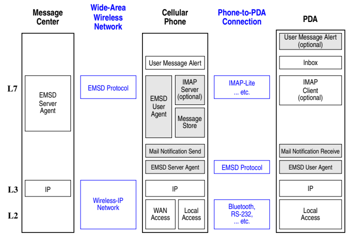

Device / Client Side
Server Side
GPS
CC Reader
ATM
TV Controller
User Interface
Device Applications
Application Specific Protocol (DEVICE)
Thin Reliability Layer
UDP
IP
Wireless Modem
Wireless Net (e.g. CDPD, ...)
Internet
Server Applications
Application Specific Protocol (SERVER)
Back End Interface
Thin Reliability Layer
UDP
TCP
IP

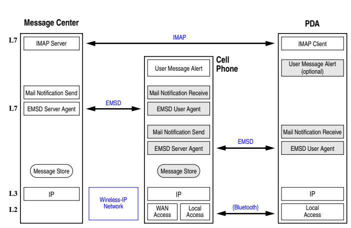

Desktop E-Mail System
Microsoft Outlook
BlackBerry Desktop Redirector
SMTP/POP/IMAP via Internet
Third Party Message Center
Generic Internet
SMTP via Internet
Mailbox Synchronization (proprietary)
BlackBerry Device (proprietary)
RIM PDA
RIM Modem
RIM's Wireless Mail Protocols (proprietary)
BlackBerry Message Center (proprietary)
Generic Internet
Corporate Message Center
Microsoft Exchange
Corporate Intranet
BlackBerry Enterprise Server
SMTP via Internet
Mailbox Synchronization (proprietary)
ISP Message Center
Mailbox Interface
Generic Internet
BlackBerry Forwarder/ Message Center

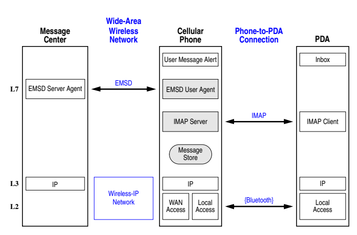
	BlackBerry	WhiteBerry
Mobile Device	Only the two RIM-manufactured devices	Any suitable mobile device
Wireless Modem	Only the integral RIM modem	Any suitable wireless modem
Wireless Network	Only the BellSouth Intelligent Wireless Network	Any suitable wireless network
Message Center Service	Only the RIM-operated or RIM-licensed service	Any independent service provider; any corporate e-mail system
Protocols	Proprietary RIM protocols	Open LEAP protocols
Desktop Integration	Only Microsoft Outlook	Any desktop mail application
Message Center Integration	Only Microsoft Exchange	Any Message Center system
System Integration	Exclusively by RIM	Any systems integrator
Security	Not true end-to-end Implementation details unknown Precludes other implementations	Open paradigm permits external security implementation

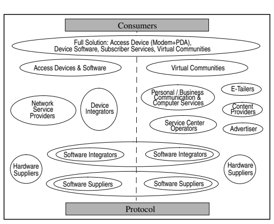

WhiteBerry
Message Center
Internet
Voice
Data
Cell Phone
{Bluetooth}
Wireless Connectivity
PDA
(no modem needed)

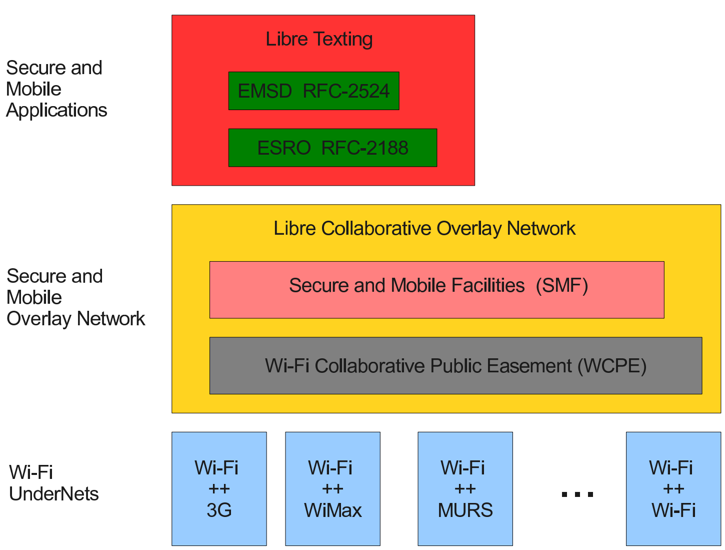

Internet Technical Community Value System
Free
Patent-Free & Copy Free
Open
Publication (RFC),
General Availability
Promotion
Engineering
LEAP
Forum
LEAP Protocols
RFC-
2188
...
RFC-
2524
EMSD.ORG
ESRO.ORG
Open-Source
Server Software
Open-Source
Device Software
Corporate
Intranet
Desktop
ISP
Palmtop
WinCE
Pagers
Cell
Phones
Device Products
Message Center
Products
System
Integration
Subscriber
Services
THE BIG OPPORTUNITY
BUSINESS
VALUE SYSTEM
Competition
Co-opetition
Partnership
NEDA


Message Center
Wide-Area Wireless Network
Cellular Phone
Phone-to-PDA Connection
PDA
L7
L3
L2
EMSD Server Agent
IP
EMSD Protocol
Wireless-IP Network
User Message Alert
EMSD User Agent
IMAP Server (optional)
Message Store
Mail Notification Send
EMSD Server Agent
IP
WAN Access
Local Access
IMAP-Lite ... etc.
EMSD Protocol
Bluetooth, RS-232, ... etc.
User Message Alert (optional)
Inbox
IMAP Client (optional)
Mail Notification Receive
EMSD User Agent
IP
Local Access

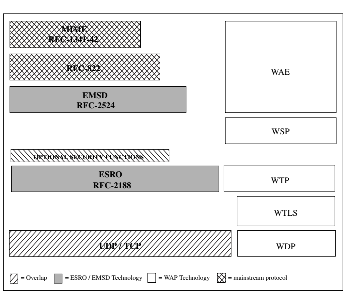

Message Center
PDA
L7
IMAP Server
IMAP
IMAP Client
Cell Phone
User Message Alert
User Message Alert (optional)
Mail Notification Send
Mail Notification Receive
L7
EMSD Server Agent
EMSD
EMSD User Agent
Mail Notification Send
Mail Notification Receive
EMSD
EMSD Server Agent
EMSD User Agent
Message Store
Message Store
L3
IP
Wireless-IP Network
IP
IP
L2
WAN Access
Local Access
{Bluetooth}
Local Access

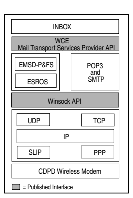

Wide-Area
Wireless
Network
Message
Center
Cellular
Phone
Phone-to-PDA
Connection
PDA
User Message Alert
Inbox
L7
EMSD Server Agent
EMSD
EMSD User Agent
IMAP
IMAP Server
IMAP Client
Message
Store
L3
IP
IP
IP
Wireless-IP
Network
L2
WAN
Access
Local
Access
[Bluetooth]
Local
Access

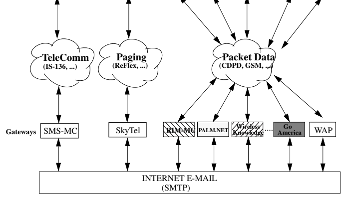

Consumers
Full Solution: Access Device (Modem+PDA),
Device Software, Subscriber Services, Virtual Communities
Access Devices & Software
Virtual Communities
Network
Service
Providers
Device
Integrators
Personal / Business
Communication &
Computer Services
E-Tailers
Content
Providers
Service Center
Operators
Advertiser
Software Integrators
Software Integrators
Hardware
Suppliers
Hardware
Suppliers
Software Suppliers
Software Suppliers
Protocol



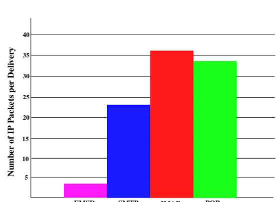
Libre Texting and Libre Collaborative Overlay Network and Wi-Fi++

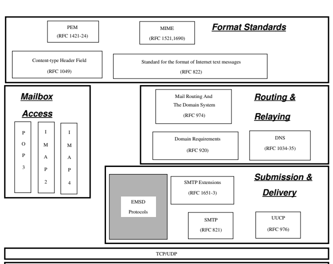

MIME
RFC-1341-42
RFC-822
EMSD
RFC-2524
WAE
WSP
OPTIONAL SECURITY FUNCTIONS
ESRO
RFC-2188
WTP
WTLS
UDP / TCP
WDP
= Overlap
= ESRO / EMSD Technology
= WAP Technology
= mainstream protocol

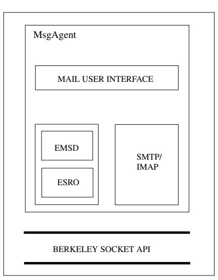

INBOX
WCE
Mail Transport Services Provider API
EMSD-P&FS
ESROS
POP3
and
SMTP
Winsock API
UDP
TCP
IP
SLIP
PPP
CDPD Wireless Modem
= Published Interface

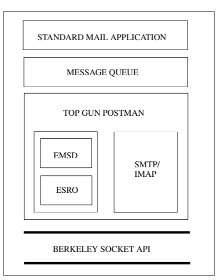

SMS Phone
Motorola Pager
Blackberry
PALM VII
Qualcom
Minstral
WAP
TeleComm (IS-136, ...)
Paging (ReFlex, ...)
Packet Data (CDPD, GSM, ...)
Gateways
SMS-MC
SkyTel
RIM-MC
PALM.NET
Wireless Knowledge
Go America
WAP
INTERNET E-MAIL (SMTP)

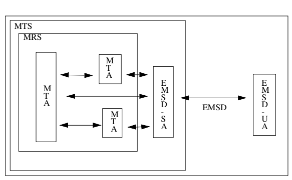
	PUBLIC (ISP)	PRIVATE (Corporate Intranet)	PERSONAL (Desktop)
Customer	Wireless Data Providers, Paging Operators, ISPs, ...	Intranet Messaging Operators Fortune 5000	Desktop Users
Product Description	Message Center for ISPs, ...	Message Center for Intranet	Personal Desktop Forwarders
Platforms	Solaris,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

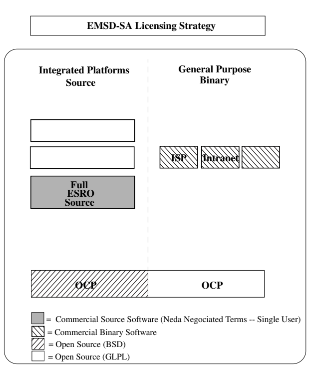

Number of IP Packets per Delivery
40
35
30
25
20
15
10
5
EMSD
SMTP
IMAP
POP

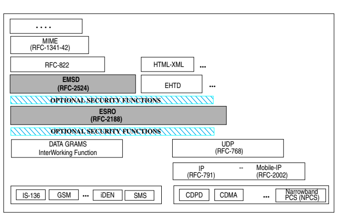

PEM
(RFC 1421-24)
MIME
(RFC 1521,1690)
Format Standards
Content-type Header Field
(RFC 1049)
Standard for the format of Internet text messages
(RFC 822)
Mailbox Access
POP3
IMAP2
IMAP4
Mail Routing And
The Domain System
(RFC 974)
Routing & Relaying
Domain Requirements
(RFC 920)
DNS
(RFC 1034-35)
EMSD
Protocols
SMTP Extensions
(RFC 1651-3)
Submission & Delivery
SMTP
(RFC 821)
UUCP
(RFC 976)
TCP/UDP
IP

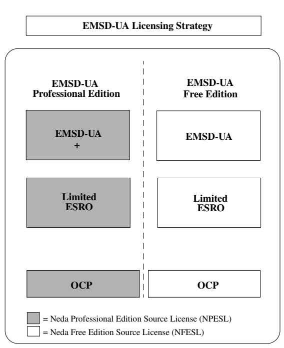

MsgAgent
MAIL USER INTERFACE
EMSD
ESRO
SMTP/
IMAP
BERKELEY SOCKET API

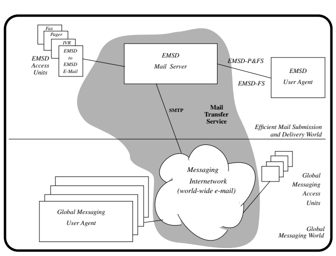

STANDARD MAIL APPLICATION
MESSAGE QUEUE
TOP GUN POSTMAN
EMSD
ESRO
SMTP/
IMAP
BERKELEY SOCKET API

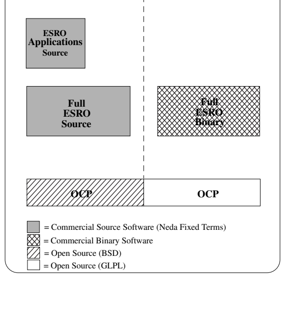

MTS
MRS
MTA
MTA
MTA
EMSD-SA
EMSD
EMSD-UA

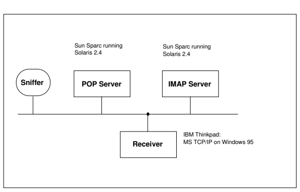

EMSD-SA Licensing Strategy
Integrated Platforms
Source
General Purpose
Binary
Full
ESRO
Source
ISP
Intranet
OCP
OCP
= Commercial Source Software (Neda Negociated Terms -- Single User)
= Commercial Binary Software
= Open Source (BSD)
= Open Source (GLPL)

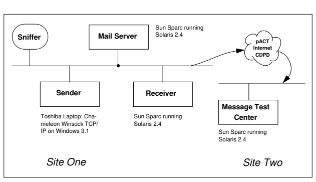

....
MIME
(RFC-1341-42)
RFC-822
HTML-XML
EMSD
(RFC-2524)
EHTD
OPTIONAL SECURITY FUNCTIONS
ESRO
(RFC-2188)
OPTIONAL SECURITY FUNCTIONS
DATA GRAMS
InterWorking Function
UDP
(RFC-768)
IP
(RFC-791)
Mobile-IP
(RFC-2002)
IS-136
GSM
iDEN
SMS
CDPD
CDMA
Narrowband
PCS (NPCS)

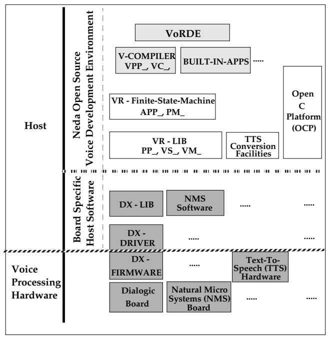

EMSD-UA Licensing Strategy
EMSD-UA Professional Edition
EMSD-UA Free Edition
EMSD-UA +
EMSD-UA
Limited ESRO
Limited ESRO
OCP
OCP
= Neda Professional Edition Source License (NPESL)
= Neda Free Edition Source License (NFESL)


Fax
Pager
IVR
EMSD
to
EMSD
E-Mail
EMSD
Access
Units
EMSD
Mail Server
EMSD-P&FS
EMSD-FS
EMSD
User Agent
SMTP
Mail
Transfer
Service
Efficient Mail Submission
and Delivery World
Messaging
Internetwork
(world-wide e-mail)
Global
Messaging
Access
Units
Global Messaging
User Agent
Global
Messaging World

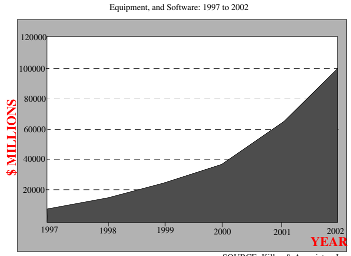

ESRO Licensing Strategy
Integrated Platforms Source
General Purpose Binary
ESRO Applications Source
Full ESRO Source
Full ESRO Binary
OCP
OCP
= Commercial Source Software (Neda Fixed Terms)
= Commercial Binary Software
= Open Source (BSD)
= Open Source (GLPL)


Sun Sparc running
Solaris 2.4
Sun Sparc running
Solaris 2.4
Sniffer
POP Server
IMAP Server
Receiver
IBM Thinkpad:
MS TCP/IP on Windows 95


Sniffer
Mail Server
Sun Sparc running
Solaris 2.4
pACT
Internet
CDPD
Sender
Receiver
Message Test
Center
Toshiba Laptop: Cha-
meleon Winsock TCP/
IP on Windows 3.1
Sun Sparc running
Solaris 2.4
Sun Sparc running
Solaris 2.4
Site One
Site Two

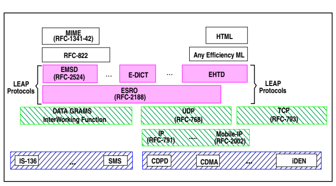

VoRDE
V-COMPILER VPP_, VC_
BUILT-IN-APPS
.....
Open C Platform (OCP)
VR - Finite-State-Machine APP_, PM_
VR - LIB PP_, VS_, VM_
TTS Conversion Facilities
Host
Neda Open Source Voice Development Environment
Board Specific Host Software
DX - LIB
NMS Software
DX - DRIVER
DX - FIRMWARE
Text-To-Speech (TTS) Hardware
Dialogic Board
Natural Micro Systems (NMS) Board
Voice Processing Hardware

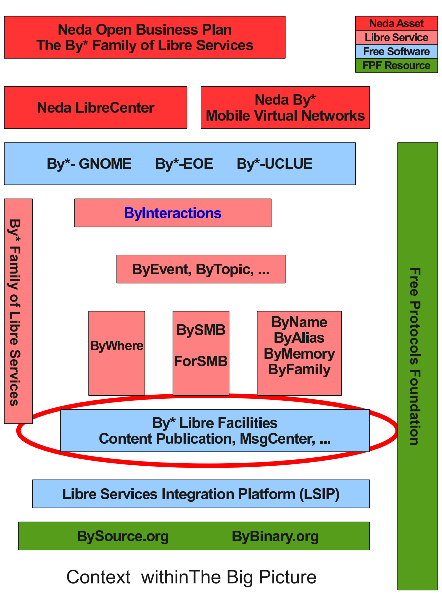
The Global Revenue for wireless access to the Internet and Intranet-Centered Services, Equipment, and Software: 1997 to 2002



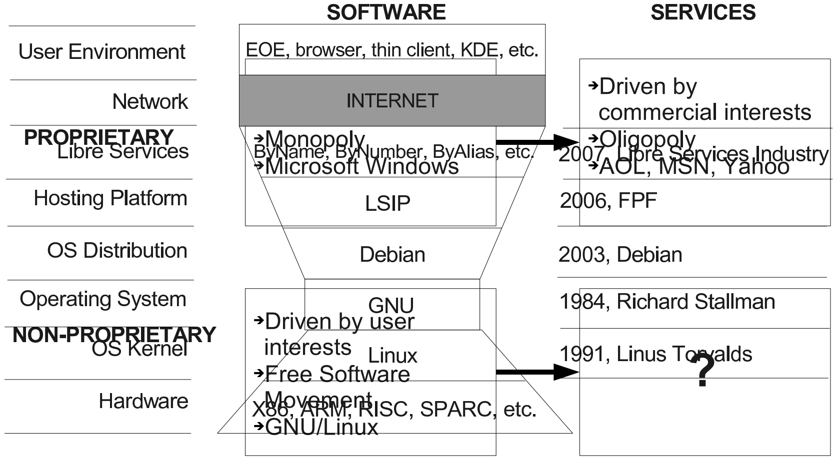
SOURCE: Killen & Associates, Inc.

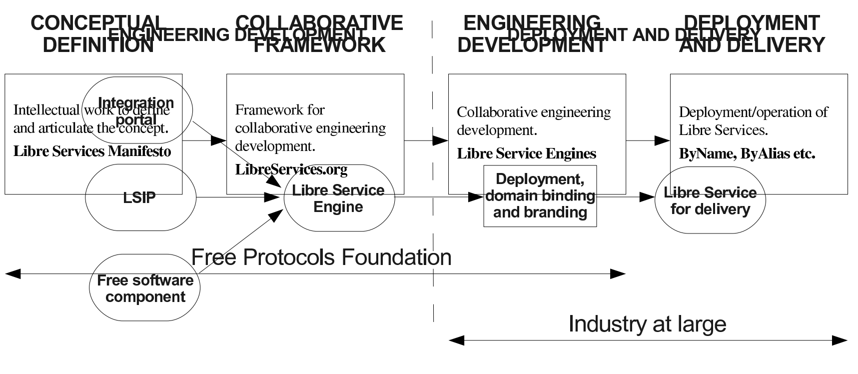
	OPEN DEVICES			CLOSED DEVICES		
	Palm Pilot	WinCE	Other PDAs	Other Phones	Wireless Modems	Wireless PDAs
Customer/User	You	You	You		Sierra, Novatel	
Typical Devices					Minstrel, AirCard 300	Palm VII
Platform						
Professional Licensing	Shrink Wrap	Neda Prof Source				
Free Licensing	GPL	None	None			


MIME
(RFC-1341-42)
HTML
RFC-822
Any Efficiency ML
EMSD
(RFC-2524)
E-DICT
EHTD
LEAP
Protocols
ESRO
(RFC-2188)
LEAP
Protocols
DATA GRAMS
InterWorking Function
UDP
(RFC-768)
TCP
(RFC-793)
IP
(RFC-791)
Mobile-IP
(RFC-2002)
IS-136
SMS
CDPD
CDMA
iDEN

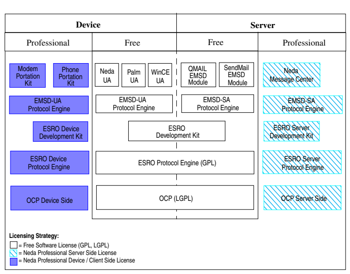


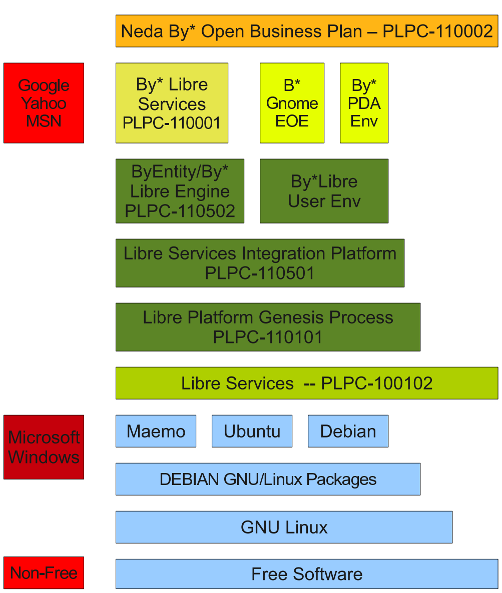
Context withinThe Big Picture

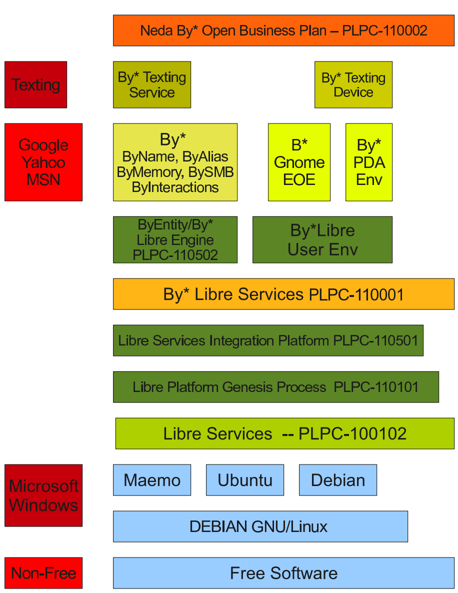

SOFTWARE
SERVICES
User Environment
Network
PROPRIETARY
Libre Services
Hosting Platform
OS Distribution
Operating System
NON-PROPRIETARY
OS Kernel
Hardware
EOE, browser, thin client, KDE, etc.
INTERNET
ByName, ByNumber, ByAlias, etc.
LSIP
Debian
GNU
Linux
X86, ARM, RISC, SPARC, etc.
Monopoly
Microsoft Windows
Driven by user interests
Free Software Movement
GNU/Linux
Driven by commercial interests
Oligopoly
AOL, MSN, Yahoo
2007, Libre Services Industry
2006, FPF
2003, Debian
1984, Richard Stallman
1991, Linus Torvalds
?

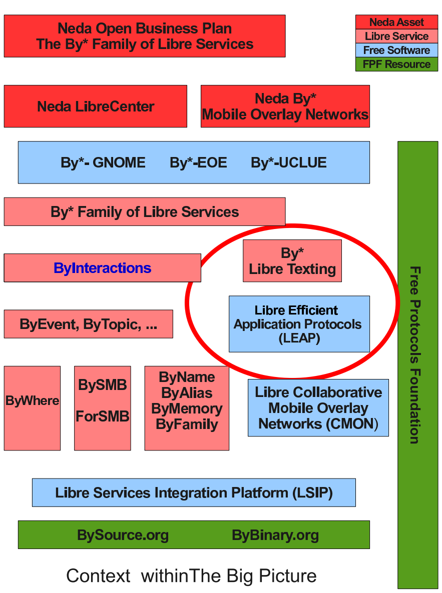


CONCEPTUAL DEFINITION
ENGINEERING DEVELOPMENT
COLLABORATIVE FRAMEWORK
ENGINEERING DEVELOPMENT
DEPLOYMENT AND DELIVERY
DEPLOYMENT AND DELIVERY
Intellectual work to define and articulate the concept.
Libre Services Manifesto
Integration portal
Framework for collaborative engineering development.
LibreServices.org
Collaborative engineering development.
Libre Service Engines
Deployment/operation of Libre Services.
ByName, ByAlias etc.
LSIP
Libre Service Engine
Deployment, domain binding and branding
Libre Service for delivery
Free Protocols Foundation
Free software component
Industry at large

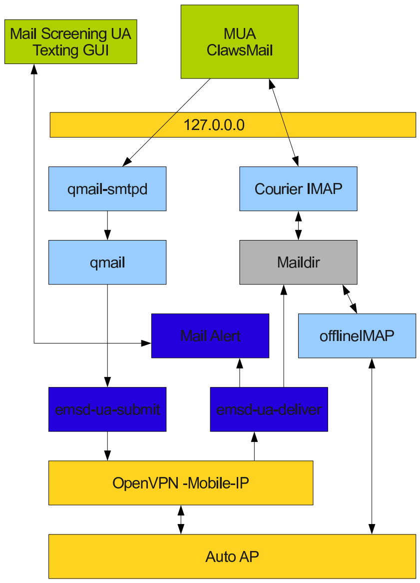

Device
Server
Professional
Free
Free
Professional
Modem Portation Kit
Phone Portation Kit
Neda UA
Palm UA
WinCE UA
QMAIL EMSD Module
SendMail EMSD Module
Neda Message Center
EMSD-UA Protocol Engine
EMSD-UA Protocol Engine
EMSD-SA Protocol Engine
EMSD-SA Protocol Engine
ESRO Device Development Kit
ESRO Development Kit
ESRO Server Development Kit
ESRO Device Protocol Engine
ESRO Protocol Engine (GPL)
ESRO Server Protocol Engine
OCP Device Side
OCP (LGPL)
OCP Server Side
Licensing Strategy:
= Free Software License (GPL, LGPL)
= Neda Professional Server Side License
= Neda Professional Device / Client Side License

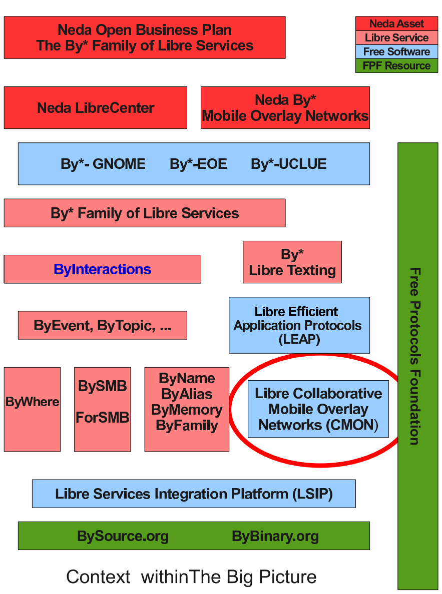

Neda By* Open Business Plan – PLPC-110002
Google Yahoo MSN
By* Libre Services PLPC-110001
B* Gnome EOE
By* PDA Env
ByEntity/By* Libre Engine PLPC-110502
By*Libre User Env
Libre Services Integration Platform PLPC-110501
Libre Platform Genesis Process PLPC-110101
Libre Services -- PLPC-100102
Microsoft Windows
Maemo
Ubuntu
Debian
DEBIAN GNU/Linux Packages
GNU Linux
Non-Free
Free Software


Neda By* Open Business Plan – PLPC-110002
Texting
By* Texting Service
By* Texting Device
Google Yahoo MSN
By* ByName, ByAlias ByMemory, BySMB ByInteractions
B* Gnome EOE
By* PDA Env
ByEntity/By* Libre Engine PLPC-110502
By*Libre User Env
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
Non-Free
Free Software

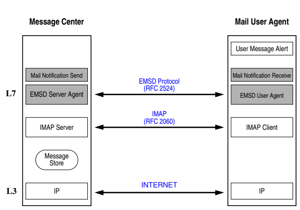


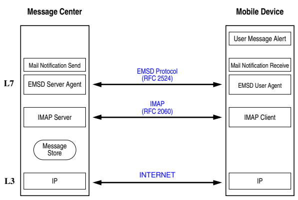
Context withinThe Big Picture

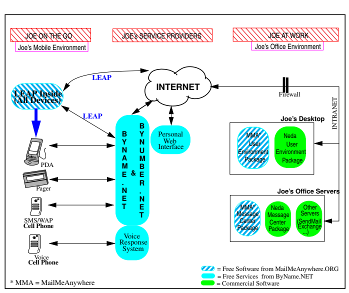

Mail Screening UA
Texting GUI
MUA
ClawsMail
127.0.0.0
qmail-smtpd
Courier IMAP
qmail
Maildir
Mail Alert
offlineIMAP
emsd-ua-submit
emsd-ua-deliver
OpenVPN -Mobile-IP
Auto AP



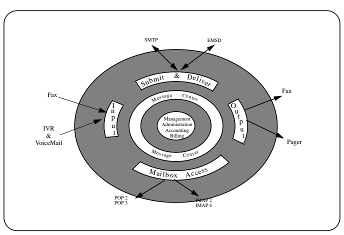
Context withinThe Big Picture

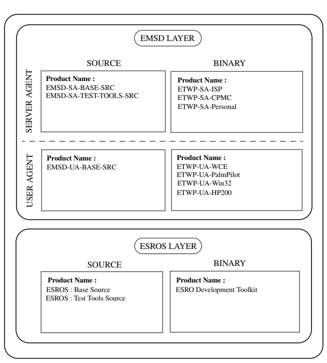

Message Center
Mail User Agent
User Message Alert
Mail Notification Send
Mail Notification Receive
EMSD Protocol
(RFC 2524)
L7
EMSD Server Agent
EMSD User Agent
IMAP
(RFC 2060)
IMAP Server
IMAP Client
Message
Store
L3
IP
INTERNET
IP

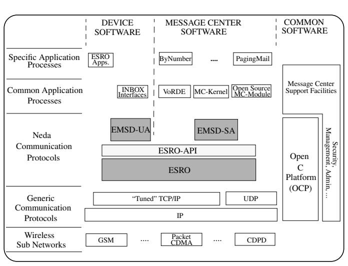

Message Center
Mobile Device
User Message Alert
Mail Notification Send
Mail Notification Receive
EMSD Protocol
(RFC 2524)
L7
EMSD Server Agent
EMSD User Agent
IMAP
(RFC 2060)
IMAP Server
IMAP Client
Message Store
INTERNET
L3
IP
IP

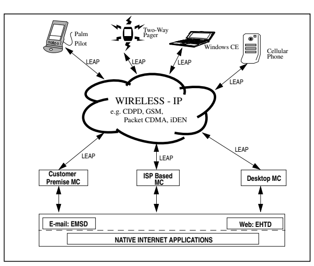

JOE ON THE GO
Joe's Mobile Environment
JOE's SERVICE PROVIDERS
JOE AT WORK
Joe's Office Environment
LEAP
INTERNET
Firewall
LEAP Inside (All Devices)
LEAP
INTRANET
BYNAME.NET & BYNUMBER.NET
Personal Web Interface
Joe's Desktop
MMA* User Environment Package
Neda User Environment Package
PDA
Pager
SMS/WAP Cell Phone
Joe's Office Servers
MMA* Message Center Package
Neda Message Center Package
Other Servers (SendMail Exchange ...)
Voice Response System
Voice Cell Phone
= Free Software from MailMeAnywhere.ORG
= Free Services from ByName.NET
= Commercial Software
* MMA = MailMeAnywhere

Web Site	Information Type	Description
www.EMSD.org **www.ESRO.org** **www.LEAPForum.org**	PROTOCOLS AND STANDARDS	- Base Protocol Specifications - White Papers - Application Programming Interfaces - Supported Subnetworks and Devices - Related Mailing Lists
www.FreeProtocols.org	PATENT FREEDOM	- Free Protocols Process & Procedures
www.NEDA.com **www.MailMeAnywhere.org**	PRODUCTS	- FREE Customer Products Windows CE Software for Enhanced Two-Way Paging - Message Center Products (Solaris) - Developer Toolkits - Service Bureau & Intranet Products
www.ByNumber.net **www.ByName.net**	SUBSCRIBER SERVICES	- 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”

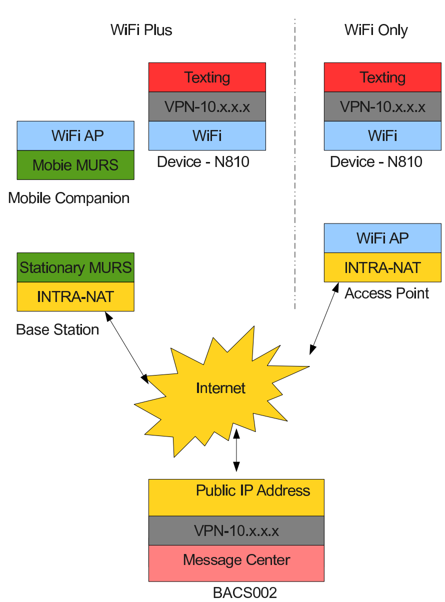

SMTP
EMSD
Submit & Deliver
Fax
Input
IVR
&
VoiceMail
Message Center
Management
Administration
Accounting
Billing
Message Center
Output
Fax
Pager
Mailbox Access
POP 2
POP 3
IMAP 2
IMAP 4

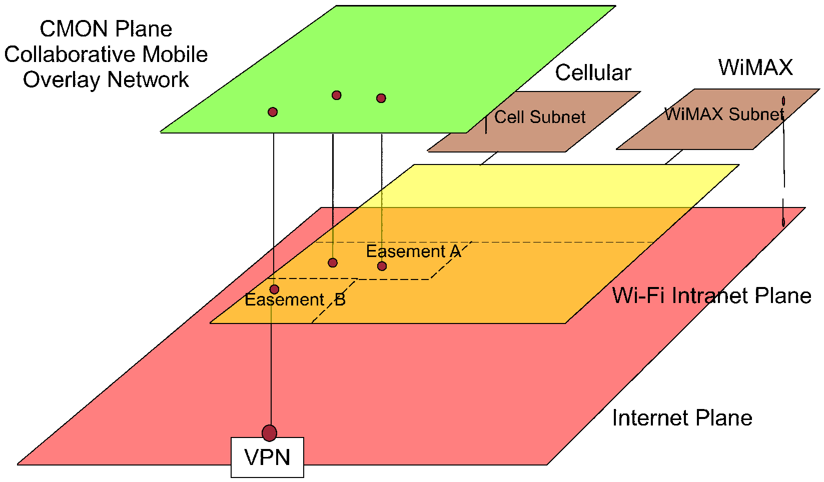

EMSD LAYER
SOURCE
BINARY
SERVER AGENT
Product Name :
EMSD-SA-BASE-SRC
EMSD-SA-TEST-TOOLS-SRC
Product Name :
ETWP-SA-ISP
ETWP-SA-CPMC
ETWP-SA-Personal
USER AGENT
Product Name :
EMSD-UA-BASE-SRC
Product Name :
ETWP-UA-WCE
ETWP-UA-PalmPilot
ETWP-UA-Win32
ETWP-UA-HP200
ESROS LAYER
SOURCE
BINARY
Product Name :
ESROS : Base Source
ESROS : Test Tools Source
Product Name :
ESRO Development Toolkit


DEVICE SOFTWARE
MESSAGE CENTER SOFTWARE
COMMON SOFTWARE
Specific Application Processes
ESRO Apps.
ByNumber
....
PagingMail
Common Application Processes
INBOX Interfaces
VoRDE
MC-Kernel
Open Source MC-Module
Message Center Support Facilities
Neda Communication Protocols
EMSD-UA
EMSD-SA
ESRO-API
ESRO
Open C Platform (OCP)
Security, Management, Admin, ...
Generic Communication Protocols
"Tuned" TCP/IP
UDP
IP
Wireless Sub Networks
GSM
....
Packet CDMA
....
CDPD


Palm
Pilot
Two-Way
Pager
Windows CE
Cellular
Phone
LEAP
LEAP
LEAP
LEAP
WIRELESS - IP
e.g. CDPD, GSM,
Packet CDMA, iDEN
LEAP
LEAP
LEAP
Customer
Premise MC
ISP Based
MC
Desktop MC
E-mail: EMSD
Web: EHTD
NATIVE INTERNET APPLICATIONS

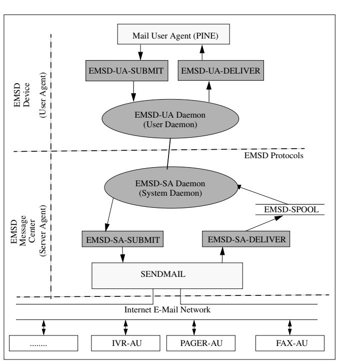
```
From: Mohsen Banan <mohsen.neda.com>
TO: Mohsen Banan-Pager <873456@pager.neda.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

You will get this plain text email as alphanumeric page
```

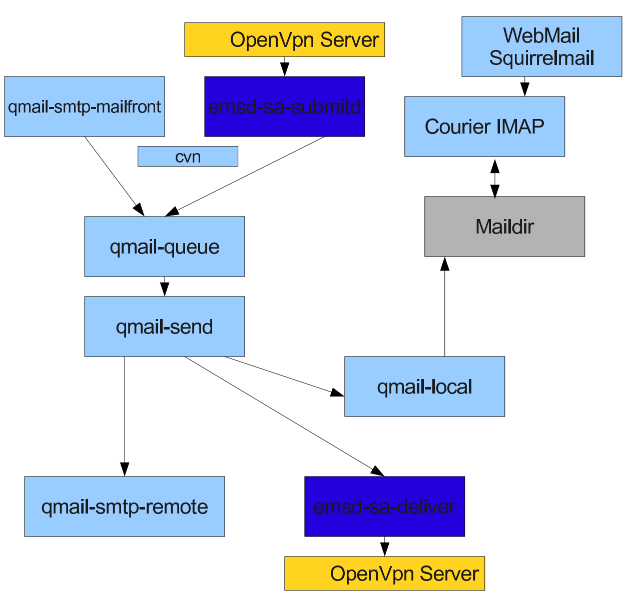

WiFi Plus
WiFi Only
Texting
VPN-10.x.x.x
WiFi
Device - N810
Texting
VPN-10.x.x.x
WiFi
Device - N810
WiFi AP
Mobie MURS
Mobile Companion
WiFi AP
INTRA-NAT
Access Point
Stationary MURS
INTRA-NAT
Base Station
Internet
Public IP Address
VPN-10.x.x.x
Message Center
BACS002



CMON Plane
Collaborative Mobile
Overlay Network
Cellular
WiMAX
Cell Subnet
WiMAX Subnet
Easement A
Easement B
Wi-Fi Intranet Plane
Internet Plane
VPN

Use	Protocol	Usage/ Publications	Publications/ Availability	Open Source Implementation	Commercial Implementation	Development/ Maintenance	Standards Body Blessing	Long-term Success
Architecture	TCP/IP	Free	RFC / Open	Many	Many	Open	IETF (After)	Success
	SNA/DECnet	Licensed	Closed	None	Few	Closed	None	Fail
	ISO/OSI	Free	ISO/Limited	Few	Many	Limited	ISO	Fail
E-Mail	SMTP	Free	RFC / Open	Many	Many	Open	IETF (After)	Success
	X.400	Free	ITU/Limited	Few	Many	Limited	ITU	Fail
	MS:Mail CC:Mail	Licensed	Closed	None	Few	Closed	None	Fail
Security	S/MIME	Free	RFC / Open	Few	Few	Open	IETF	Fail
	PGP	Free	RFC / Open	Many	Few	Open	None	Success
WWW	HTTP/HTML	Free	RFC / Open	Many	Many	W3, Limited	None (W3 Later)	Success
Wireless	LEAP	Free	RFC / Open	Many	Few	Open	None	?
	WAP	Licensed/ Patented	Self/Limited	Few	Few (More)	Limited (WAP Forum)	None	?


Mail User Agent (PINE)
EMSD-UA-SUBMIT
EMSD-UA-DELIVER
EMSD Device (User Agent)
EMSD-UA Daemon (User Daemon)
EMSD Protocols
EMSD-SA Daemon (System Daemon)
EMSD-SPOOL
EMSD Message Center (Server Agent)
EMSD-SA-SUBMIT
EMSD-SA-DELIVER
SENDMAIL
Internet E-Mail Network
....
IVR-AU
PAGER-AU
FAX-AU


OpenVpn Server
WebMail
Squirrelmail
qmail-smtp-mailfront
emsd-sa-submitd
Courier IMAP
cvn
Maildir
qmail-queue
qmail-send
qmail-local
qmail-smtp-remote
emsd-sa-deliver
OpenVpn Server

Form to be filled by a new subscriber

Full Name:

Postal Address:

City: State: Zip: Country:

Phone Number: (Area Code - local number) Fax: (Area Code - local number)

International Phone Number: (Country Code - Area Code - local number)

Pager: (Provider) (Number)

Requested LSM Nickname:

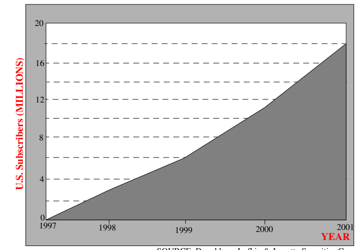
Preferred “Reply To” Address:

Preferred “From” Name:

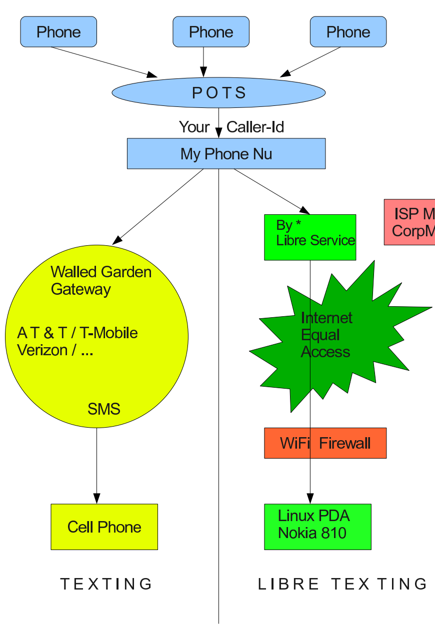
LSM Device IP Address:

To be filled by Neda

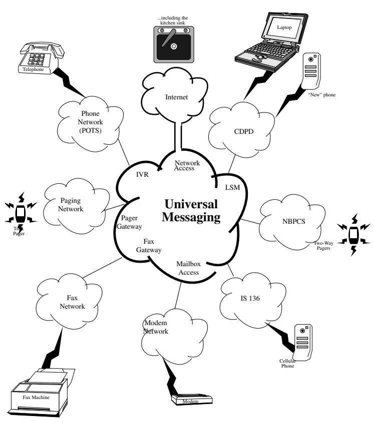
Neda Subscriber ID: —

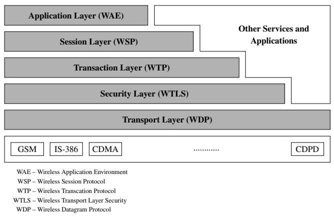


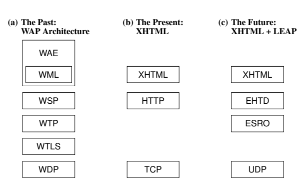
SOURCE: Donaldson, Lufkin & Jenrette Securities Corp.



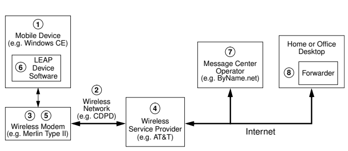
Phone
Phone
Phone
POTS
Your
Caller-Id
My Phone Nu
By *
Libre Service
ISP Mail
CorpMail
Walled Garden
Gateway
A T & T / T-Mobile
Verizon / ...
SMS
Internet
Equal
Access
WiFi Firewall
Cell Phone
Linux PDA
Nokia 810
TEXTING
LIBRE TEXTING

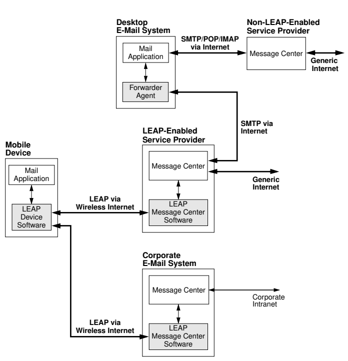

...including the kitchen sink
Laptop
Telephone
"New" phone
Internet
Phone Network (POTS)
CDPD
Network Access
IVR
LSM
Paging Network
Universal Messaging
NBPCS
Pager Gateway
Fax Gateway
Two-Way Pagers
Mailbox Access
Fax Network
IS 136
Modem Network
Cellular Phone
Fax Machine
Modem

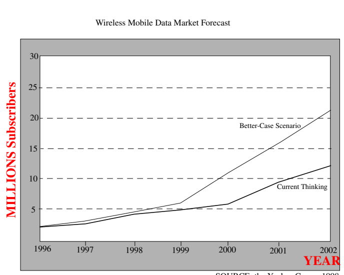

Application Layer (WAE)
Other Services and Applications
Session Layer (WSP)
Transaction Layer (WTP)
Security Layer (WTLS)
Transport Layer (WDP)
GSM
IS-386
CDMA
....
CDPD
WAE – Wireless Application Environment
WSP – Wireless Session Protocol
WTP – Wireless Transcation Protocol
WTLS – Wireless Transport Layer Security
WDP – Wireless Datagram Protocol

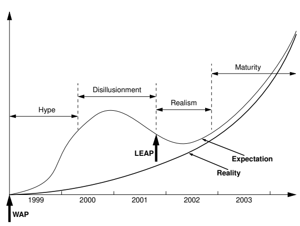

(a) The Past: WAP Architecture
WAE
WML
WSP
WTP
WTLS
WDP
(b) The Present: XHTML
XHTML
HTTP
TCP
(c) The Future: XHTML + LEAP
XHTML
EHTD
ESRO
UDP

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


1
Mobile Device
(e.g. Windows CE)
6 LEAP Device Software
2
Wireless Network
(e.g. CDPD)
3 5
Wireless Modem
(e.g. Merlin Type II)
4
Wireless Service Provider
(e.g. AT&T)
7
Message Center Operator
(e.g. ByName.net)
Home or Office Desktop
8 Forwarder
Internet


Desktop
E-Mail System
Mail
Application
Forwarder
Agent
SMTP/POP/IMAP
via Internet
Non-LEAP-Enabled
Service Provider
Message Center
Generic
Internet
SMTP via
Internet
Mobile
Device
Mail
Application
LEAP
Device
Software
LEAP via
Wireless Internet
LEAP-Enabled
Service Provider
Message Center
LEAP
Message Center
Software
Generic
Internet
Corporate
E-Mail System
Message Center
Corporate
Intranet
LEAP via
Wireless Internet
LEAP
Message Center
Software


Wireless Mobile Data Market Forecast
MILLIONS Subscribers
30
25
20
15
10
5
Better-Case Scenario
Current Thinking
1996
1997
1998
1999
2000
2001
2002
YEAR
SOURCE: the Yankee Group, 1998


Maturity
Disillusionment
Realism
Hype
LEAP
Expectation
Reality
1999
2000
2001
2002
2003
WAP

Causes for Concern

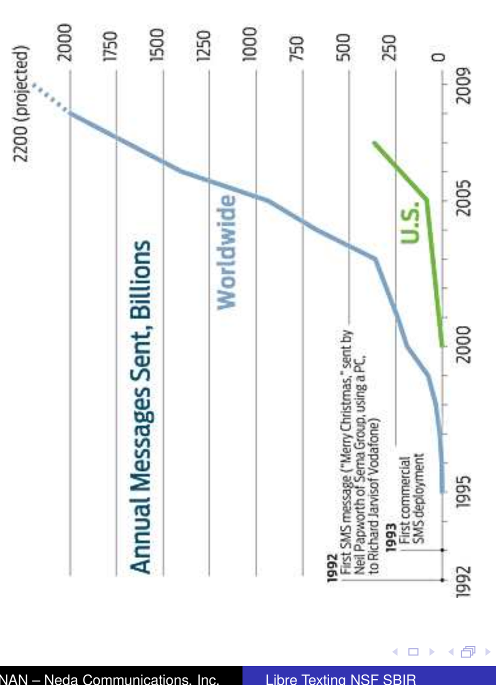
- Networks are societal resources and their usage model must not be left to free markets and business.
- The mobile Internet is today controlled by large corporations, and critical civil liberties are being compromised.
- Current Copyright and Patent laws are in conflict with nature and are harming humanity.
- 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


Annual Messages Sent, Billions
2200 (projected)
2000
1750
1500
1250
1000
750
500
250
0
Worldwide
U.S.
1992
First SMS message ("Merry Christmas," sent by
Neil Papworth of Sema Group, using a PC,
to Richard Jarvisof Vodafone)
1993
First commercial
SMS deployment
1992
1995
2000
2005
2009

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

- Good Good
- Low Lower
- Good Good
- (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!

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
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
- 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

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

Texting: a Very
Demanding Application

1. Speed (delivery expectation: less than 10 seconds)
1. Network capacity and efficiency (bandwidth)
1. Device limitations (battery)
1. Reliability (no lost messages)
1. Scalability (eventually the whole planet's population)
1. 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

- 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

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 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

- - 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
- Engineering execution: protocols, software, spectrum
- Libre Services model: philosophy, morality, legality

- By* Libre Texting Service
- By* Libre Services Open Business Plan
- History
- Evaluation, participation, collaboration. Join us!

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

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 execution
- 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

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 execution
- By* Libre Services Open Business Plan
- History
- Evaluation, participation, collaboration. Join us!

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
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

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 execution
- By* Libre Services Open Business Plan
- History
- Evaluation, participation, collaboration. Join us!

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 Revisited12 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

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 execution

- By* Libre Services Open Business Plan
- History
- Evaluation, participation, collaboration. Join us!

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