

EMSD.ORG

Shaping The Future Of Two-Way Paging Industry

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What Is Two-Way Paging?

- **Enhanced Two-Way Paging is Urgent & Important E-mail “pushed” to you**
- **(Mobile) Cell Phones are to: Fixed Phones,
What
(Mobile) Two-Way Paging is to: Fixed Email**
- **Two-Way Paging, E-mail, Fax, VoiceMail,.. are all on the same continuum**
- **Two Way Paging is the Killer Application for Wide-Area Wireless Networking**

Wireless Email vs. Two-Way Paging

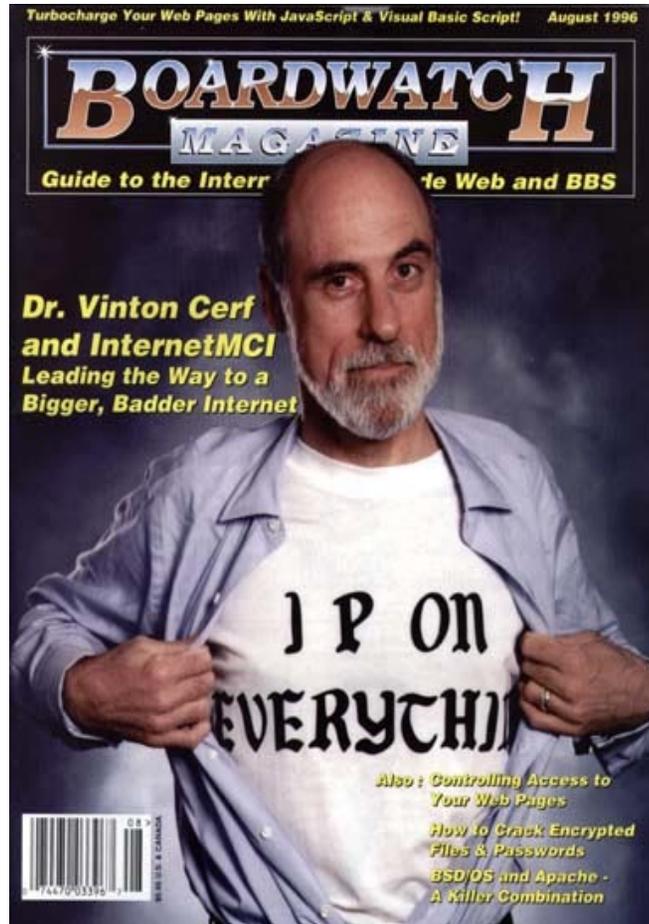
	Email	Today's Paging	Two-Way Paging (EMSD)
Message Structures (From: , Subject: , Date:)	Yes	No	Yes
Main Stream & Open Any Device Works With Any Message Center	Yes	No	Yes
Intranet Provider Supplied Account (Generally)	Yes	No	Yes
Service Provider (ISP) Supplied Account	Yes	Yes	Yes
Access Through Ordinary Telephone	No	Yes	Yes
Urgent/Pushed Message Delivery	No	Yes	Yes
Good For Long Messages	Yes	No	No

Right Way Of Doing Two-Way Paging

- **Everybody and his cousin (and his cousin's cousin) is claiming to be doing two-way paging and wireless email over some Wireless Network.**
- **None of them is open and they do not interoperate.**
- **Very Bad For Everyone!**
- **We Say:**

**All Wireless-IP Based
Two-Way Pagers and Wireless-Email
Devices and Services Should
Interoperate**

From a General Vision:



- IP on Everything

To a Specific Vision:

EMSD on All Two-Way Pagers Everywhere

- **What is Efficient Mail Submission and Deliver (EMSD) Protocol?**

Considering:

- that most wireless networks shall converge toward being IP based;
- that two-way paging is the main proven application in most wide-area wireless networks;
- that the two-way paging industry and Internet Email industry can and should converge based on a set of open protocols that address the efficiency requirements adequately;
- that existing Internet email protocols are not bandwidth efficient;
- that existing Internet email protocols do not properly support the “push” model of delivery of urgent messages,

the EMSD protocol is designed to facilitate the convergence of IP based two-way paging and Internet email.

Shaping The Future Of Two-Way Paging Industry

- **This is about:**

“Building Of the Two-Way Paging Industry”

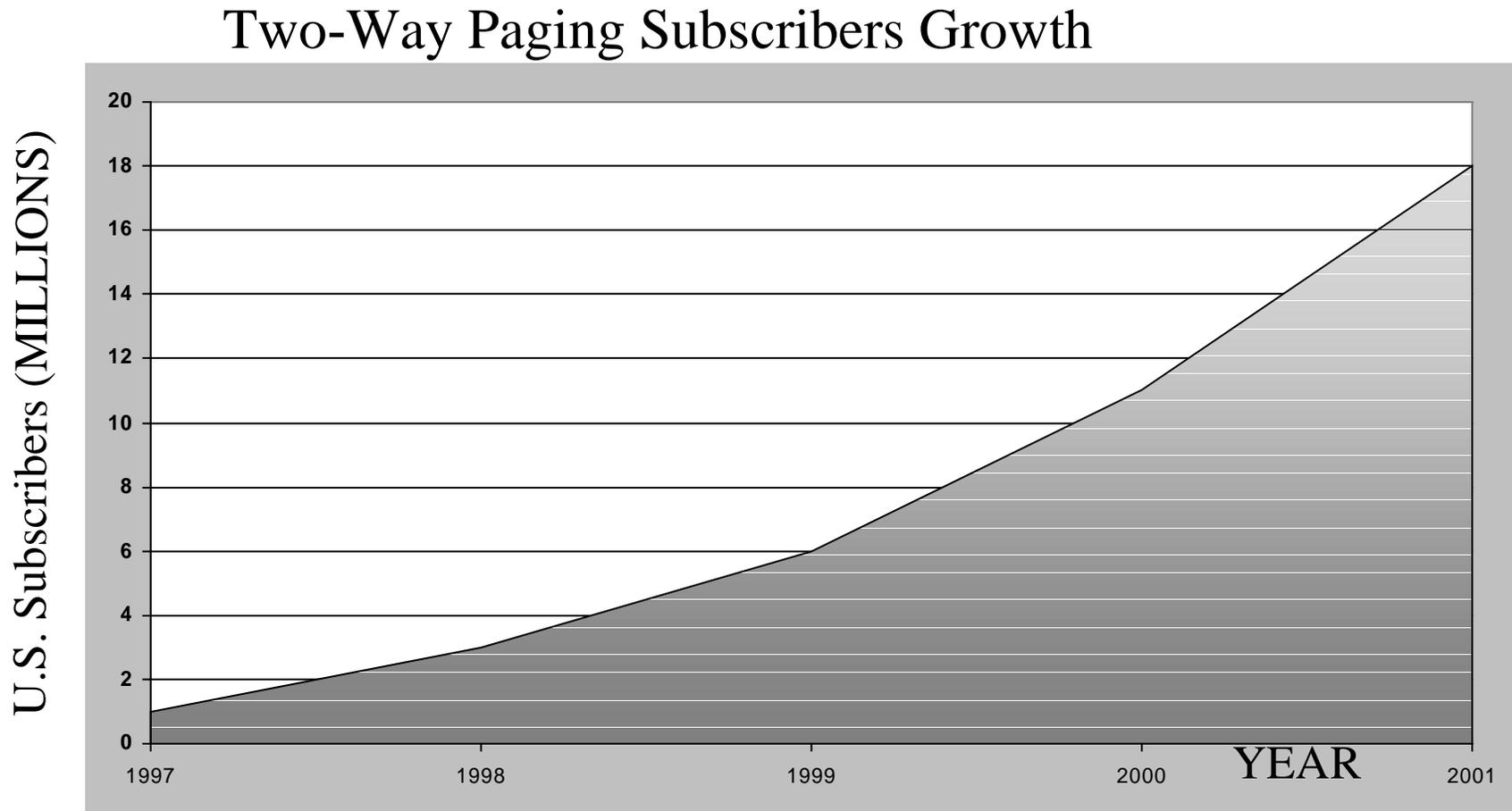
- **This is:**
 - Not just about a niche market
 - Not just about a product or products
 - Not just about a “Paging Services”
 - Not just about standards & technology

An Industry means all of the above and more...

Two-Way Paging Market Size

- **“The Yankee Group in Boston forecast sales of two-way pagers to hit 5 million next year, 24 million by 2001 and 54 million by 2003” (Wireless Week Aug.31, 1998)**
- **The Yankee Group estimates that there will be nearly seven million wireless and mobile data subscribers by 1999, increasing to more than 21 million by 2002. (3Com web site-News & Promotions)**

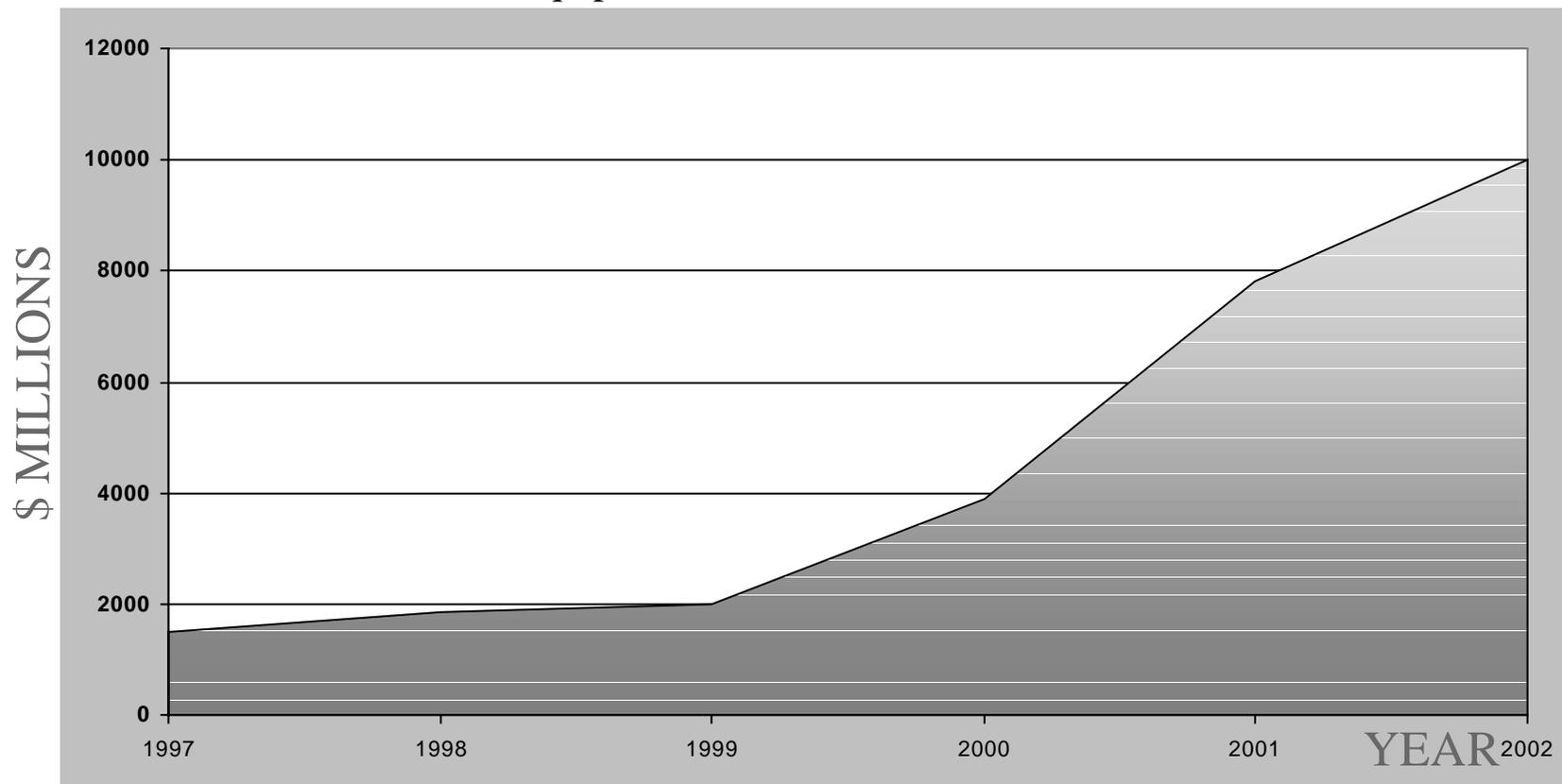
Two-Way Paging Subscribers



SOURCE: Donaldson, Lufkin & Jenrette Securities Corp

The Wireless Internet Explosion

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



SOURCE: Killen & Associates, Inc

Shaping The Future Of Two-Way Paging Industry

- **Building a Network Related Industry involves:**
 - The recognition that: “the network grows through openness & collaboration, NOT through competition & confrontation”
 - The “medium” is tricky.
- **Focus on Widespread Deployment & Usage.**
- **True belief in Openness.**
- **Building an Industry involves giving away a lot for free.**

Check List For Success

Wireless Data
Industry
PDAs

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- **Pre-Requisite (External):**

- Reasonable Wireless Networks (Reliable, Widespread, Affordable)
- Reasonable Wireless Modems (Affordable, Good Form Factors)
- Reasonable Devices (Palm Pilot, WinCE, Pagers, ...)

Beta
Shipping

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- **Requirements (Controllable):**

- Open Protocols & Standards
- Two-Way Paging Subscriber Services
- Device Software Products (For: Palm Pilot, WinCE, Pagers, ...)
- Intranet (Customer Premise) Message Center Software Products
- ISP Message Center Products

Wireless Networks, Modems & PDA's

Wireless Networks:

- CDPD
- GSM
- Packet CDMA
- Mobile IP
- TDMA

Modems:

- Sierra Wireless
- Motorola
- Mitsubishi
- ...

PDA's:

- Win CE
- Palm Pilot
- Symbian
- ...

Protocols & Standards

- **Can't Build Such An Industry Without OPEN Protocols**

- **The Right Protocols should:**
 - Fit Right & Play Well with the rest of Internet Messaging Environment
 - Address Most Of The Relevant Requirements
 - Be Completely Open. NO IPRs, NO Copying Restrictions
 - Be widely published & easily accessible To Everyone
 - Be widely reviewed & be subject to widely scrutiny
 - Have an Organization to maintain & enhance them

Key Requirements for Wireless Messaging

- **Minimize number of bytes transferred**
 - Less bytes results in larger network capacity
- **Minimize number of transmissions**
 - Fewer transmissions results in longer battery life
- **Minimize user perceived response time**
 - Quicker response time makes for happier users
- **Minimize Code Size**
 - Allows Miniaturized Devices

EMSD Protocol Specifications

- **Can't Build Such An Industry Without OPEN Protocols**

- AT&T/Neda's Efficient Short Remote Operations (ESRO) Protocol Specifications -- RFC-2188

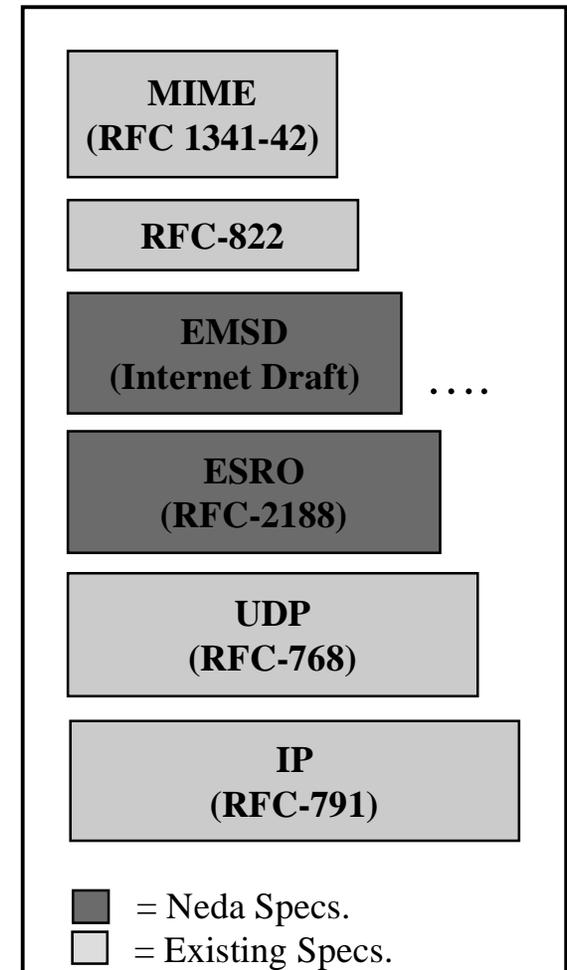
Published: September 1997

Author : M. Banan, Neda
M. Taylor, AWS
J. Cheng, AWS

- Neda's Efficient Mail Submission and Delivery (EMSD) Protocol Specification -- Internet Draft.

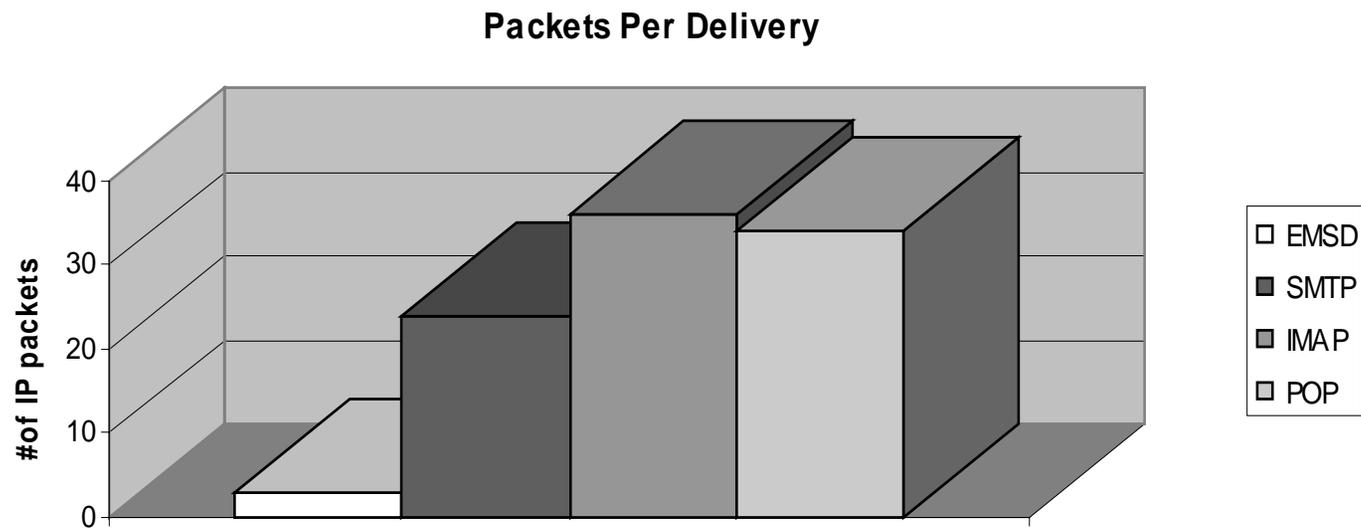
Published: October 1998

Author: M. Banan, Neda



Efficiency , Efficiency, Efficiency

Delivery: EMSD, SMTP, IMAP, POP



Band Width Efficiency Means:

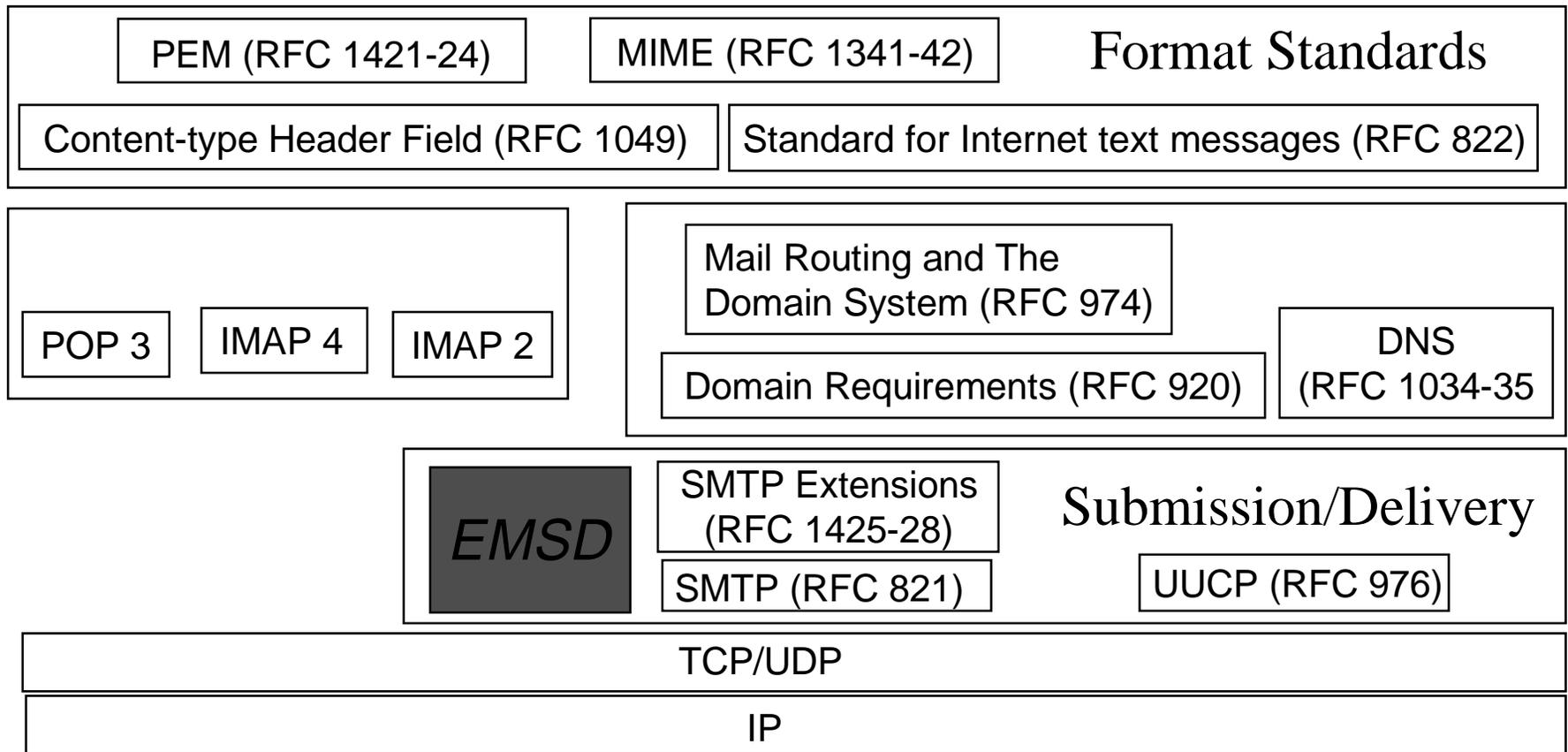
- More Capacity
- Longer Battery Life
- Cheaper Network Usage
- Less Latency

Messaging Protocols vs. Supported Functions

Protocols Functions	SMTP	IMAP	POP	EMSD
Submission	XXX			XXX
Delivery	XXX			XXX
Relay (Routing)	XXX			
Retrieval		XXX	XXX	XX
Mailbox Access		XXX	X	
Mailbox Synchronization		XXX		

The number of “X”es in each box attempts to denote to what extent a particular function is supported by a particular protocol.

Messaging Communication Stack and EMSD



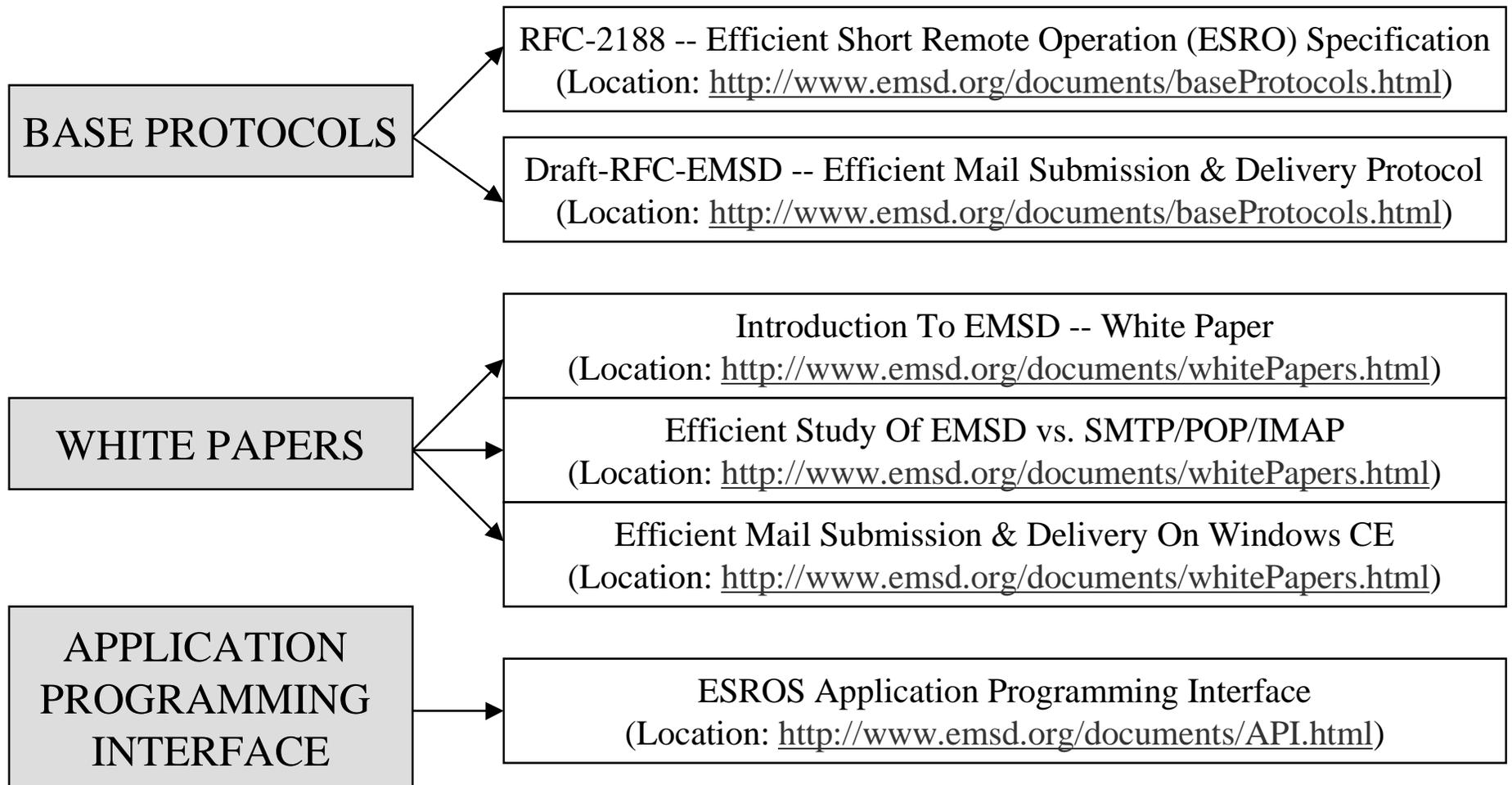
Standards & Technology Leadership

WWW.EMSD.ORG

WWW.ESRO.ORG

- **A vehicle for promotion of EMSD vision of Two-Way Paging Industry.**
- **A means for maintenance & enhancements of EMSD Protocols**

EMSD.ORG Road Map



Models & Precedence

	Web Industry	Two-Way Paging Industry
Pre-Requisite	Wired IP Networks, Multimedia PCs	Wireless IP Networks, Palm Top PCs, ...
Open Standards	HTTP/HTML published as RFC-1945 & RFC-1866	ESRO/EMSD published as RFC-2188, RFC-DRAFT-EMSD
Standards Organization	W3 Consortium	EMSD.ORG
Client Software	Browsers on All platforms freely available	User Agent Software for Windows CE...freely available
Server Software	Plug & Play, Freely Available	Plug & Play, Reasonable Licencing
Service Providers	mosaic.com, ...	subscribers.neda.com, ...
Non Business Thinking	Cern Physics Lab Guys	Mohsen
Business Leadership	Netscape	NEDA
Open Source	Apache, Netscape	Ready For Open Source

Market Segments

- **User Market Segments**
 - Vertical Markets
 - Horizontal Markets
- **Message Center Market Segments**
 - Wireless-Data / Paging Operators (AT&T, GTE, ...)
 - ISPs (UUNET, Netcom, PSI, ...)
 - Intranets (Boeing, Virginia Mason Hospital, ...)
- **Technology Market Segments**
 - Modem Manufacturers
 - PDA Manufacturers
 - System Integrators

End Users Market Segments

Starting Vertical - Ending Horizontal

- **Medical Industry**
- **Public Safety**
- **Emergency Professionals**
- **Drug Dealers**
- **Field Service**
- **Financial Industry**
- **...**
- **Mobile Professionals**
- **Apartment Managers**
- **Expecting Fathers**
- **Rich Brats (90210)**
- **Soccer Moms**
- **...**

Server Agent Market Segments

PUBLIC (ISPs)

- **Paging/Wireless-Data Infrastructure Product**
- **Message Center for large service providers**
- **Supports interfaces for accounting, provisioning, ...**
- **Key Attributes: Manageability, scalability**
- **Analogous to CENTREX in POTS networks**

PRIVATE (Corp Intranet)

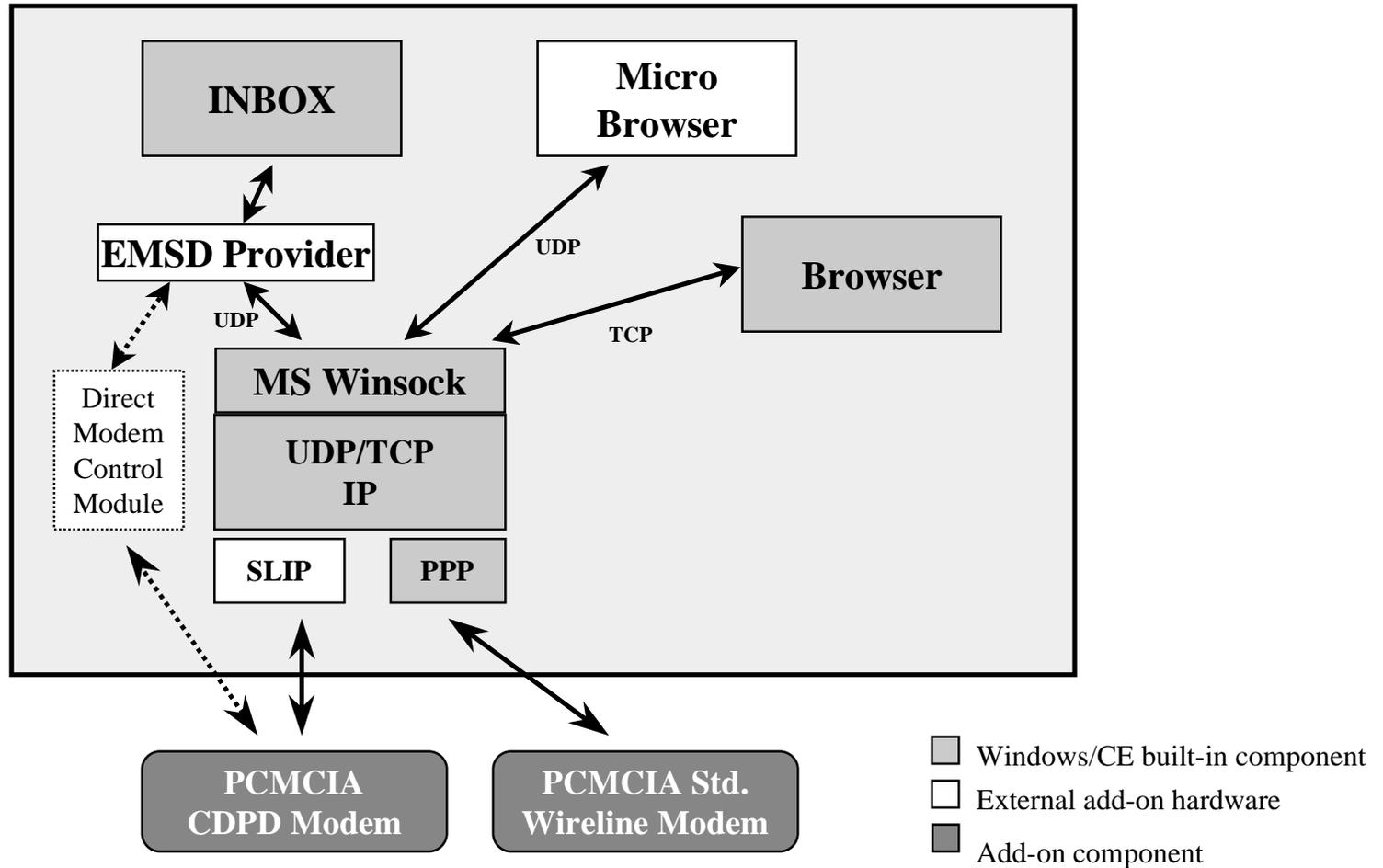
- **Intranet Messaging Product**
- **A self-contained messaging server for intranets**
- **Gives the messaging center control to the IS organization**
- **Key Attributes: Ease of Use, plug-and-play**
- **Analogous to PBX in POTS networks**

PERSONAL (Desktop)

- **User Desktop Personal Message Center**
- **Gives full message center control to the individual user**
- **Key Attributes: Ease of Use, Plug & Play, Personal Preferences**
- **Analogous to a private phone in POTS**

EMSD on Win/CE: Details

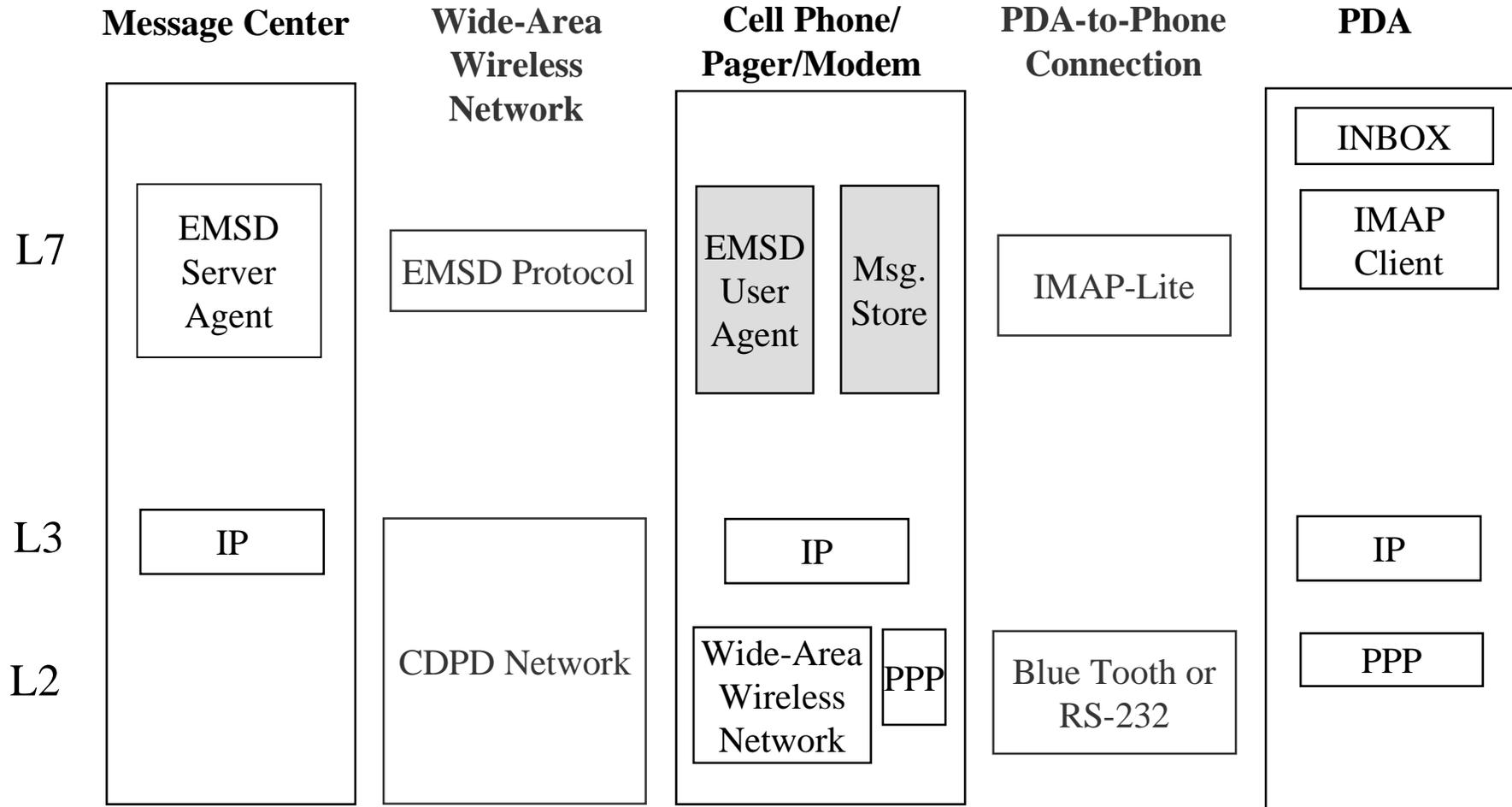
Windows CE Palmtop Version of Neda Palmware EMSD



02/05/99

EMSD.ORG -- Two-Way Paging Industry

Put It On The Phone/Modem



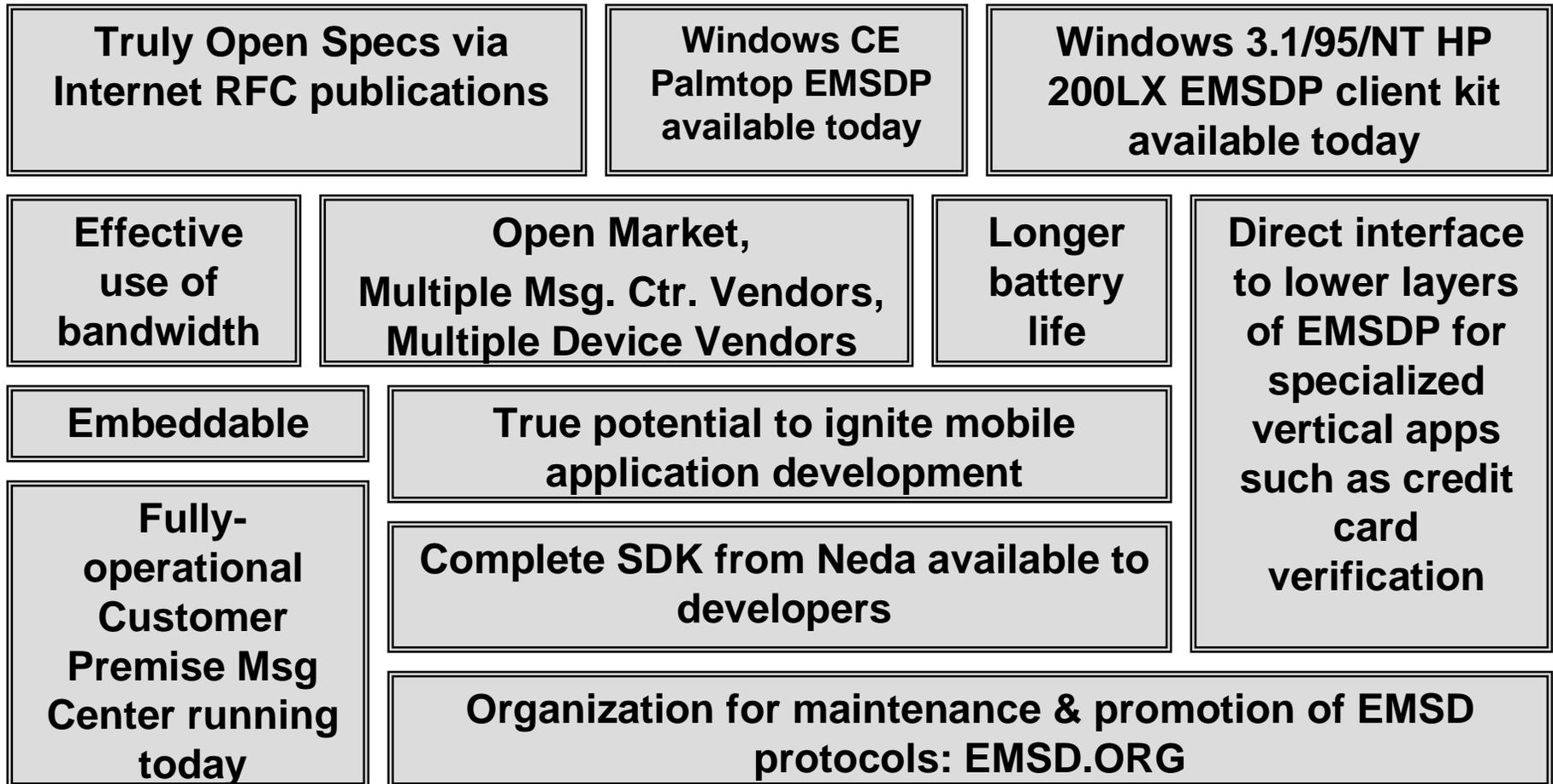
EMSD Implementations

Web Site	Information Type	Descriptions
www.emsd.org	PROTOCOLS AND STANDARDS	<ul style="list-style-type: none"> • Base Protocol Specifications & White Papers • API & Supported Sub-Networks and Devices • Related Mailing Lists
www.neda.com	PRODUCTS	<ul style="list-style-type: none"> • FREE Customer Products Windows CE Software for Enhanced Two-Way Paging • Message Center Products (Solaris) • Developer Toolkits • Service Bureau & Intranet Products
www.etwp.net	SUBSCRIBER SERVICES	<ul style="list-style-type: none"> • FREE Two-Way Paging Accounts • Web Based Message Originator
www.ByNumber.net	SUBSCRIBER SERVICES	<ul style="list-style-type: none"> • Interactive Voice Response Service for Enhanced Two-Way Paging
www.subscribers.neda.com	SUBSCRIBER SERVICES	<ul style="list-style-type: none"> • FREE Two-Way Paging Accounts & more

Competition Is Good !!!

	Before 200X	After 200X
Offerings	Short Term Suppliers	Long Term Suppliers
Reasonable Wireless Networks (IP Based)	CDPD, GSM, ...	Wireless & Mobile-IP
Wireless Modem	Sierra, Motorola, ...	Best Of Breed
PDA's & Palm Tops	WinCE, Palm Pilot, ...	Best Of Breed
Protocols & Standards	EMSD.ORG (NEDA)	IETF, ...
Subscriber Services	Subscribers.NEDA.COM (NEDA)	Best Of Breed
Device Software Products	NEDA	Best Of Breed
Customer Premise Message Center Products	NEDA	NEDA + Best Of Breed
ISPs Message Center Products	NEDA	NEDA + Best Of Breed
Protocol Technology	NEDA	NEDA + ...
Rule Based Msg. Processing	Demo Capability	Best Of Breed
INBOX Synchronization	Demo Capability	Best Of Breed

Complete, Ready, Available, Free,



Additional Relevant Information

- **This Presentation:**
 - <ftp://ftp.neda.com/pub/presentations/emsdGeneral/public/twoWayPagingInd/twoWayPagingInd.ppt>
- **Efficient Mail Submission & Delivery Organization**
 - <http://www.emsd.org>
- **Efficient Short Remote Operations Organization**
 - <http://www.esro.org>
- **Neda Communications, Inc.**
 - <http://www.neda.com>
 - Links to FREE Windows CE Two-Way Paging products & FREE Two-Way Paging Subscriber Services