MOHSEN BANAN

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Summary

I have over 20 years of software engineering experience spanning software architecture, design, coding and software project management.

Protocol Design and Implementation. I have published two Internet RFCs under my own name (RFC-2188 and RFC-2524), and have played a role in the development and publication of several protocols through various standards organizations.

Software Development & Methodologies. Through the past 20 years I have remained a coder as well as a designer, and have maintained vertical continuity in the software development process. Expert level understanding and experience of C, C++, Lisp, Korn Shell/Bash, Perl, Java, Python, CVS, Subversion, GNATS, ANT, Emacs, CORBA, Unix system interface, eXtremeProgramming, Design Patterns, Refactoring, Scrum.

Platforms. Expert level understanding and experience of Linux (Debian, Ubuntu, Red Hat), Unix/Solaris, Windows, Windows CE, MacOS, Palm OS, J2ME, eCos, embedded environments. Hands on experience with a variety of Linux PDAs including: Maemo 4 (Nokia N810), Maemo 5 (N900) and Android.

Security. Extensive experience with IP-SEC, Firewalls (Shorewall, Ferm), TLS/SSL, PGP & gpg, S/MIME, PKCS, X.509, DNSSEC, tripwire, snort.

The Mobile and Wireless Domain. I am one of the original and principal architects of the CDPD Specifications. I have authored numerous wireless-related books, articles and technical papers. Extensive experience with CDPD, Wi-Fi (802.11), WiMAX (802.16), Bluetooth, GPRS, GSM, EDGE, 3GPP, LTE, SMS, CDMA, TDMA, AMPS.

Data Communications. Expert level understanding of Layers 2 through 7. Extensive experience with SMTP, IMAP, POP, DNS, LDAP, HTTP, HTML, XML, PGP, S/MIME, X.509, X.500, ASN.1, CMIP, SNMP, RPC, TCP, T-TCP, IPv4, IPv6, Mobile-IP, IP-SEC, 802.1, 802.2, etc.

Telecommunications. Extensive experience with SS7, TCAP, SCCP, OMAP, IS-136, IS-41, ISDN, Telephony/POTS, VoIP.

Standards Processes. ITU, IETF, IESG, IAB, TIA, ANSI, NIST, W3C.

Open-Source Software. qmail, Sendmail, Courier, SpamAssassin, imp, ezmlm, MHonArc, HylaFAX, SANE, BIND, djbdns, daemontools, ucspi, Apache HTTP server, Zope, Plone, Turbine, Tomcat, Jetspeed, Velocity, PostgreSQL, MySQL, Hibernate, Torque, Asterisk, Samba, CUPS, LaTeX.

Operations and Deployment. Have acted as webmaster, hostmaster and postmaster of more than a dozen networks for over ten years. Managed complex Layer 3 routing and security for mid-size networks. Managed ISP and ASP services for private and public user communities.

Experience **Consultant** Bellevue, WA
1991–present

Provided consulting and/or contract engineering services for numerous clients and projects. Satisfied clients include: Sierra Wireless, AT&T Wireless Data Division, CDPD Forum, Data Critical, Electronic Mail Association, Emulex, Motorola and Microsoft.

Notable assignment and projects include:

- From 1992 to 1995 played a key role in the creation of the Cellular Digital Packet Data (CDPD) industry. Led the technical network architecture design for the CDPD specifications, and was directly involved in the planning, development and deployment of the network services for AT&T Wireless Services.
- Provided liaison and advocacy for client interactions with various standards organizations including TIA, ANSI and IETF/IESG/IAB.
- Participated in the strategic planning and protocol design for Mobile E-Mail and Paging services of AT&T Messaging Divison.
- Assisted the Technical Committee and the Department of Justice in monitoring Microsoft technical compliance with the Final Judgement. Advocated use of the model of Protocol Implementation Conformance Statement (PICS) Proforma as a verification method.
- Provided prior art determination and expert witness services in the defense against a number of patent assertion claims.
- Performed technical due diligence and offered technology opinions for mergers and acquisitions and technology investments.
- Managed a team of 12 software engineers in development of a large scale message center which integrated SMS, email (imap, pop, smtp) and webmail. Coded some of the more critical components myself.
- Managed a team of 3 software engineers in porting several Sierra Wireless protocol stacks to new embedded hardware platforms.
- Performed security audits for various organizations in the insurance and hospitality industries.
- Designed and implemented a medium scale (2 tera-bytes) Document Management System (DMS) for Seattle Specialty Insurance. Integrated eFax, scanners and OCR with legacy databases.
- Provided Off Site Hot Standby Disaster Recovery services for Seattle Specialty Insurance.
- Built a complete state-of-the-art Data Center from the ground up, including redundant stable power and backup generator and redundant Internet connections. The infrastructure of this Libre Data Center is based on 100% open-source and free software.

Free Protocols Foundation Bellevue, WA
Founder and President, 2000–present
Founded the Free Protocols Foundation (FPF) as a U.S. tax-exempt 501(c)(3) organization. The FPF is an independent public forum dedicated to the support of patent-free protocols, software and services. Created websites (www.freeprotocols.org) and other resources to support FPF activities. Formulated policies and procedures for maintaining patent-free protocols. Developed the concept of Libre Services and created www.libreservices.org and other resources for promotion of the Libre concept and model.

Teknekron Communication Systems Bellevue, WA
Systems Architect & Project Manager, 1990–1991

Managed the architectural design and implementation of medium-scale Network Management systems of SS7 networks using SNMP and CMIP.

Boeing Computer Services Bellevue, WA
Systems Architect, 1989–1990
Responsible for standards tracking and strategic planning of Directory Services (X.500) in Boeing office. Chairman of North American MAP/TOP Directory Services Technical Committee. Represented Boeing in NIST-OIW and ANSI OSI standards committees.

Interconnections Bellevue, WA
Project Engineer, 1988–1989
Designed and implemented the network layer of XNS for Novell Netware VMS. Ported software to SCO Unix as a Kernel Streams Module.

Retix Santa Monica, CA
Project Engineer, 1986–1988
One of the original seven software engineers who developed the core technology for Retix. Lower layer work was focused on Transport Class 4, IP, LLC1 and 802.3 drivers. Upper layer work was focused on X.400. Ported Retix's lower layer software to various hardware platforms and operating systems.

Teltone Corporation Seattle, WA
Software Engineer, 1983–1985
Developed a local telephone call billing system for step-by-step and cross-bar central offices, in C, for custom embedded Teltone hardware. Worked closely with hardware engineers to ensure correct system functionality.

Education

University of Washington Seattle, WA
M.S. in Electrical Engineering, 1981–1982
Specialization in Digital Systems and Computer Engineering

Seattle University Seattle, WA
B.S. in Electrical Engineering, 1978–1981
Graduated Magna Cum Laude

Publications

I have a large number of publications; what follows is only a small sample. A more complete list is available at the Publications section of my website at mohsen.banan.1.byname.net/Publications. Each of the following publications is available at the indicated URL.

1. M. Banan, J. Cheng, and M. Taylor. *AT&T/Neda's Efficient Short Remote Operations (ESRO) Protocol Specification Version 1.2.* Request for Comments (Informational) 2188. Neda Communications, Inc., September 1997. Available at ftp://ftp.isi.edu/in-notes/rfc2188.txt.
2. Banan, M. *Neda's Efficient Mail Submission and Delivery (EMSD) Protocol Specification Version 1.3.* Request for Comments (Informational) 2524. Neda Communications, Inc., February 1999. Available at ftp://ftp.isi.edu/in-notes/rfc2524.txt.
3. Mark S. Taylor, William Waung, and Mohsen Banan. *Internetwork Mobility: The CDPD Approach.* Prentice Hall, Inc., New Jersey, 1997. ISBN 0–13–209693–5.
Available at http://mohsen.banan.1.byname.net/PLPC/120021.
4. Mohsen Banan and Andrew Hammoude. *Libre Services: A non-proprietary model for delivery of Internet services.* Free Protocols Foundation, Bellevue, WA, 2007. Available at http://www.freeprotocols.org/PLPC/100101.

5. Mohsen Banan and Andrew Hammoude. *Neda's Open Business Plan.* Neda Communications, Inc., Bellevue, WA, 2008. Available at http://www.neda.com/PLPC/110002.
6. Mohsen Banan and Andrew Hammoude. *Neda's By* family of Libre Services: A Vision and a Cooperative Execution Plan.* Neda Communications, Inc., Bellevue, WA, 2008. Available at http://www.neda.com/PLPC/110004.
7. Mohsen Banan and Andrew Hammoude. *Operation WhiteBerry.* Free Protocols Foundation, Bellevue, WA, January, 2000. Available at http://www.freeprotocols.org/PLPC/100006.
8. Mohsen Banan and Andrew Hammoude. *The WAP Trap: An Exposé of the Wireless Application Protocol* (French title *Le WAP à la trappe: Un exposé sur le Wireless Application Protocol*). Free Protocols Foundation, Bellevue, WA, January, 2000. Available at;
   http://www.freeprotocols.org/PLPC/100014.
   French version available at:
   http://www.freeprotocols.org/PLPC/100015.
9. Mohsen Banan and Andrew Hammoude. *Free Protocols Foundation Policies and Procedures.* Free Protocols Foundation, Bellevue, WA, January, 2000. Available at
   http://www.freeprotocols.org/PLPC/100201.
10. Mohsen Banan. *Lightweight & Efficient Application Protocol (LEAP) Manifesto.* LEAP Forum, Bellevue, WA, January, 2000. Available at http://www.freeprotocols.org/PLPC/100012.
11. Banan et al. *Open C Platform.* Neda Communications, Inc., Bellevue, WA, October, 1996.
    http://www.neda.com/PLPC/110301.
12. Mohsen Banan. *Computer Telephone Interface.* Master of Science in Electrical Engineering Thesis. University of Washington, August, 1982. Available at
    http://mohsen.banan.1.byname.net/PLPC/120002.

Software

I have developed a large body of software; what follows is only a small sample. A more complete list is available at the Software section of my website at http://mohsen.banan.1.byname.net/Software. All the following software is licensed under the GPL or LGPL, and is freely available at the indicated URLs.

1. Libre Services Integration Platform (LSIP)
   Available at http://www.neda.com/SW/lsip-pub.
2. Efficient Mail Submission and Delivery Server Agent (EMSD-SA)
   Available at http://www.neda.com/SW/emsd-sa-mul.
3. Efficient Mail Submission and Delivery User Agent (EMSD-UA)
   Available at http://www.neda.com/SW/emsd-ua-mul.
4. Efficient Short Remote Operations (ESRO)
   Available at http://www.neda.com/SW/esros-mulpub.
5. Open C Platform (OCP)
   Available at http://www.neda.com/SW/ocp-mul.
6. Voice Response Development Environment (VoRDE)
   Available at http://www.neda.com/SW/vorde-mul.