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Employment

Loup Technologies, Inc., Boulder, CO   2/98 - present

- A software development and consulting company.
- Clients Projects:

DekTec	SMPTE SDI Professional Video Development. DTA-2180, DTA-2182 SMPTE SDI to TS encoder application and driver enhancements, DTA-2184 SMPTE SDI encoder library and driver prototyping, user space DirectShow filter implementation.
Micron, Inc.	SSD flash translation layer development for ARM in C using Arium and Greenhills probes. Test code written in PHP. Administering Git and Jenkins.
Montrose County	High availability, backup and recovery.
Avaya, Inc.	Rearchitected SIP VOIP Hosted Solutions Element Manager built on a Fiber Channel SAN with IBM Blade servers. Software technologies included Redhat Kickstart, VLANs and VMWare ESX 3.0. Bash scripts and web methods using SOAP WSDL in Java, Ruby and Perl.
StorageTek / Sun Microsystems	Refactored embedded Linux based Fiber Channel virtualized tape SAN. Code consisted of Java JNI and SCSI and other kernel drivers. Migrated the project to Solaris x86. Performed ClearCase, SubVersion, network, Solaris, and Linux administration.
HEI, Inc.	Isolated performance and corruption issues on an embedded linux platform for medical monitoring.
Edgewater Networks, Inc.	Created prototype SNMP based management server for embedded linux ip telephony product, optimized RTP with a kernel implementation, removed bugs from open source Net-SNMP.
Lefthand Networks, Inc.	Collaborative effort to create san router with Crossroads involving deep knowledge of SCSI-3/iSCSI specs.
West Communications	Firewall, sendmail, apache, dns installation and configuration.
TeleSym, Inc.	Win/Unix threaded, high performance voicemail proxy using IMAP, SMTP, MIME, written in C++.
ProactiveNet, Inc.	HTTP based communication library for spanning a firewall, written in Java. Rearchitected, documented, and implemented a distributed API for implementing network monitoring modules.
Aptia, Inc.	Developed an SNMP Agent for monitoring web browser response times.
Asian Super Market	Created an ecommerce application using mod_perl, MySQL, and apache.
Montrose Internet	Helped develop Perl based administrative and security utilities.

Alumnipedia	1998: An interactive, online yearbook. LAMP (Linux, Apache, MySQL, Perl) based web application. Operated for nearly ten years.
Internet Securities, Inc.	Internal customer support application using Java, Perl, and C.

Sanify, Longmont, CO   2007 – 2014

- Designed and implemented a distributed, virtualized highly fault tolerant network cluster for storing block data over an ip network.
- High performance, minimal lock design written in C++ delivers extremely high iops per watt, running at full line speed across the cluster.
- No single or dual point design given sufficient hardware.
- Designed a hybrid epidemic, eventually consistent gossip type protocol.
- Implemented both 2PC and an unblockable enhanced three phase commit engine.
- Implemented view consistent message delivery.
- Designed a super fast custom flash journal to allow complete recovery from process fault.
- Implemented a live production cluster upgrade and downgrade mechanism.
- Designed patentable sophisticated permuted data layouts.
- Implemented command line parser and table output administration tool.
- Implemented base iSCSI with CHAP MD5 authentication, and SCSI block specs. Stable against numerous Linux, Windows, and Mac initiators.
- Designed and implemented a randomized simulation test system.
- Evaluated, built, and tested several generations of hardware platforms to deliver working stand alone and enterprise grade rack mount solutions to clients.

LeftHand Networks, Inc., Boulder, CO   7/02 - 6/04

- Tested and isolated IP SAN communication errors in the first generation product.
- Developed high performance two stage write cache for an IP SAN, improving iop performance twenty fold. This involved sophisticated memory mangement techniques and highly tuned data structures for manipulating hundreds of megabytes of data.
- Used PCI and IDE bus analyzers and scopes to isolate problems or prove cache functionality.
- Developed custom performance testing and analysis tools in addition to using commonly available profilers.
- Designed, assisted in the development of, and rigorously tested the world's most sophisticated NVRAM device. The device uses SDRAM, NAND FLASH, an EEPROM, a Xilinx FPGA and PROM, supercaps, and a PCI interface to secure cache data in the event of a transient failure such as loss of system power or crashed software.
- Developed an NVRAM linux device driver and api.
- Performance tested various embedded platforms for a san router project codeveloped

with Crossroads.
- Read entire SCSI-3 and iSCSI specs and removed various defects from SCSI/iSCSI san drivers.

Compteon, Inc., Cupertino, CA   2/01 - 8/03

- Cofounded an internet safety training company.
- Developed a dynamic website using Perl and MySQL to manage large groups of people, deliver relevent content to users, and track training progress with online quizzes and reporting capabilities.

Internet Securities, Inc., Boston, MA   12/94 - 1/98

- Cofounded the premier internet provider of emerging markets business and professional information.
- Grew the company from four founders to 157 employees, 18 offices, and 6MM revenue in just over three years.
- Set up offices in Pittsburgh, Manhattan, Boston, Warsaw, Prague, Budapest, Istanbul, Sofia and Moscow. This included building negotiations, all equipment acquisition and installation (servers, workstations, laptops, printers), telcom, initial client sales and support, numerous vendor relationships, hired and trained initial technical personnel.
- Built and maintained uptime and security for a worldwide network of over 30 linux and solaris servers, and over a hundred linux/win 95 workstations.
- Developed the majority of our mission critical web service, database, searching and mirroring functionality.
- Wrote over a hundred documents for training and to support ongoing operations.
- Customized and deployed the Goldmine sales support system and the Navision Financials accounting systems worldwide.
- Built a customer service application based on Java, Perl, HTML, and database technology.

Internet Technologies, sp. z o.o., Warsaw, PL 1/95 - 9/95

- Cofounded what is now the largest public internet access provider in Poland. Today there are over 40 providers and IT is still in the lead.
- Developed the business concept, forged local partnerships, negotiated various contracts, pioneered the sales strategy.
- All original technology setup (linux servers, routers, telcom) then recruited and trained numerous technical employees for operations and support.

Adonis / ConnectSoft, Inc., Bellevue, WA   5/94 - 11/94

- Large team development on EMail Connection, their flag ship product which touted email compatibility with nearly all email systems.
- Designed and implemented MIME functionality when MIME was just an RFC.
- Front end development in MS Windows.
- Consulting work for Spacelabs; designed and developed internet communication support for remote medical instrumentation tools.

Intel Corporation, Beaverton, OR   5/92 - 12/92; 5/93 - 12/93

- Participated in the design and implementation of the Distributed Verification Toolkit for software circuit simulation on workstations and parallel supercomputers (the iWarp, the iPSC/860 and the Paragon).
- Created a real-time, full color, load balanced Mandelbrot exploration tool for an iWarp supercomputer server / Sun client system.
- Created an computer animated marketing video for the iWarp supercomputer.

Independent Consulting   6/91 - 9/92

- Developed a user-oriented industry bluebook database program under DOS, for Orion Research Corp.
- C language tutoring.
- Systems consulting and small software tools.

Colorado School of Mines, Golden, CO   5/90 - 5/91

- Ported geophysics applications.
- Various small programs using X windows, C, C++, PostScript, and NIDL on heterogeneous UNIX systems.
- Assisted with laboratory design and layout, hardware installation, and system setup and configuration of several PS2 and RS6000 labs running AIX.
- Wrote an introductory UNIX tutorial.

Orion Research Corporation, Durango, CO   6/89 - 8/89

- Assisted in many aspects of the development of a nationwide price tracking network.
- Wrote utilities to access C-ISAM databases.
- Designed low level C and assembly code for a GUI toolset.

Education

8/91 -   **Carnegie Mellon University**
5/94   BS with Honors in Math and Computer Science
8/89 -   **Colorado School of Mines**
5/91   Undergrad work in Math and Computer Science

Research

Parallel Network Computing   Fall 90
Advisor: George Almasi of IBM Research
- MiG, NIDL, and UNIX sockets were coupled with various parallel techniques to attain maximum computational performance.
- A parallel version of an RS6000 geophysics modeling program was submitted in the Price/Performance category of the International Gordon Bell Competition.

Conferences

- The first ever Linux Conference, San Jose, CA, 1999
- Super Computing, Portland, OR, 1993

Interests

- Aviation (Owns aircraft, CFI, MEI, CFII)
- Science, Biographies, Science Fiction / Fantasy
- Biking, Hiking, Snow Boarding, Rock Climbing, Wind Surfing, Fishing, Racquet Ball, Table Tennis
- Rock & Ice Climbing, Photography, Music, Travel, Cooking