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Project Details

2001, August - 2001, October: DHAP Digital, Inc.

I was contracted to build a Web and command line-based tool for monitoring Toyota.com's various Web servers' uptime and the sites' page integrity. It employed a series of tests that could be configured and monitored online behaving as a largely autonomous flexible extension to the [Big Brother](#) monitoring suite.

I then enhanced this to enable an administrator to input a series of pages in a form which the monitoring software could "replay" on a schedule and ensure the returned data was correct. The input system consisted of a moderately complex proxy cache so that the user need only 'surf' a site and all the underlying transactions & cookie transfers were automatically recorded. All code was Object Oriented Perl and made heavy use of existing Perl modules (in particular [HTTP::Daemon](#) and [LWP](#))

2001, June: Virtual Health Networks, Inc.

I added [maildir](#) support derived primarily from [qmail](#) source to an existing Open Source POP daemon, [tpop3d](#) in C. Additionally, I wrote software that enabled [exim](#) the mail server to communicate directly with an Oracle *8i* database for virtual mail routing information that was shared with [tpop3d](#), both via those programs' embedded perl interpreter facility.

This project involved familiarizing myself with two medium to large-sized Open Source code bases, and sufficient DBA knowledge to create a scripted install and deployment for a Oracle *8i* development database and schema for the project.

2001, April: Herman Miller RED, Inc.

In collaboration with another developer/designer, Matt Gorbet, I was commissioned to create a Mac OS X client and Java server to track customers' mouse movements as they used the Macs in-store. This data was sent to a server that would be used as part of a in-store visualization piece Herman Miller RED have projected in their recently-opened New York store.

The project was executed against an extreme deadline: completion from scratch in approximately ten days during which time I learnt the then barely-released Mac OS X, Project Builder, Interface Builder, the Cocoa Framework (a.k.a. Yellowbox), Objective C and enough low-level BSD Ethernet network programming (I linked some Open Source code from the Darwin [bootp](#) client project) to allow the client and server to perform IP autodiscovery of each other with no configuration files.

[Herman Miller RED in-store](#) -- you can see the visualization on the back wall. The Macs in the foreground are running the client mouse tracker.

2001, January-2001, February: International Curators Int'l @ SF Art Institute

ICI is a non-profit that curates and funds touring exhibitions. I was involved with their first Internet-focussed endeavor, *Telematic Connections: The Virtual Embrace*, an exhibition consisting of **eight pieces that have a networked ('virtual') and physical component**. I **designed and built the network: routing server, managed switch, UPS, rack, CAT5 cabling**. The server is a **Debian Linux server running DHCP, NAT, QoS firewall, Apache, caching DNS and ipchains portforwarding** (to enable artists external access to their pieces). I spent considerable time helping artists set up pieces which included **Windows NT network debugging, Real Video encoder configuration**, and assorted electrical duties. I continue to oversee the server remotely.

[Telematic Connections: The Virtual Embrace](#)

[Telematic credits](#)

2000, January: Virtual Health Networks, Inc.

I provided consultancy on Apache, Perl and overall web architecture for a Peninsula start-up. I built a demo news-publishing system that provided **drop-in stylesheets, graphics & templated HTML**. The news and company data was stored in an **Oracle 8i** database accessed using Perl's **DBI**.

2000, May-Present: RAD Systems, Inc.

I moved to Monterey/Carmel in May 2000 to work for a **mortgage company** where I hacked **Apache/mod_perl** (content handlers) and built the company's **entire IT infrastructure**: two **Linux servers** providing production and development **Web, DNS, email, secure IMAP, FTP, disk backups, security, LRP-based firewall**. In my capacity as software engineer I used the **Template Toolkit** and **MySQL** (with an eye to migrating to Oracle) to create the foundation of the RAD Systems vision. As team technical lead I was responsible for providing direction on **methodology & process both in the management and engineering realms**.

1999, October-2000, May: Cable & Wireless USA

In October 2000 I was relocated to C&W USA as a result of the Omnes joint venture between Schlumberger and C&W being dissolved. My first project there was **extensive modification of a Perl-based packaged ISP solution** that C&W were installing in their Bermuda regional office. My second project was being taught **scripted Windows NT Terminal Server installation** and configuration. As this was a fledging company developing business relations I spent much of my remaining time **helping other employees with UNIX use and administration** and teaching myself **XSLT**. I attended a course using **Rational Rose's UML tools**.

1999, February-1999, October: Schlumberger Omnes

I was the point-person for **the migration of their entire LDAP Directory Services** from Omnes to Schlumberger. SLB has the largest corporate Intranet in the world & extensively use their directory services for an employee base of 60,000. This position involved a **ground-up build of Solaris 7, evaluation of commercial and Open Source LDAP providers, liaising with the LDAP solution provider's tech team** (I exposed over a dozen bugs in their version 4), **security provisions & lockdown, data syncing (LDIF over rsync)** and sundry other admin tasks. I have worked with **exim** (<http://www.exim.org/>) and built an **LDAP fuzzy email address matcher** using **exim** and **OpenLDAP**. These administrative tasks were aided by considerable use of **Perl** both as command line and full OO applications.

1998, November-January 1999: Cable & Wireless (through Black Sun, plc)

Cable & Wireless sponsored an around-the-world balloon trip that was scheduled to depart early December 1998. Black Sun Plc were contracted by C&W to produce the accompanying high traffic (4-6million hits/day estimated) web-site, <http://www.cwballoon.com/>. I was entirely responsible for the technical and code aspects of the site's installation, development and deployment. This included:

Technical liaison with States-side Unix personnel for **Real Video/Audio** and **server configuration**

Consultancy in respect of selection of optimal technologies (**mod_perl**, **Apache** web-server, server specification)

Developing the **publishing system** for the balloon flight logs, media press releases and a viewers' comments/questions section. This is a re-purposing of technology developed for ITV Formula One (see below)

Dynamic map generation to provide a top-down view of the balloon's flightpath around the world including **hyperlinks from nearby cities to the Encyclopædia Britannica**. The users are able to **zoom in and out** of the map and look back along its flightpath.

Image database with **browser-based image upload facility**, **indexing** and basic **search facility**.

Browser-based telemetry tracking to update the home page's status information and flight-path tracking.

1998, August-1999, January, UK Met.Office (through Soft Options (UK) Ltd)

The UK Meteorological Office sell image and data files from their Data and Products Distribution Service. The project was two-fold: firstly to completely redesign the existing product selection interface **to provide users with a considerably simpler and more useful interface** and secondly **to re-implement the delivery system** to enhance functionality and cope with an increasingly high load on their server.

My involvement was implementing the programmatic aspects of the new interface designed by Soft Options and creating an infrastructure that would enable **easy configuration and updating of the several thousand products** available.

The **interface** features some complex **interactive forms-based JavaScript** to provide a mechanism to **dynamically display, preview and download** any of some four hundred products at once, sorted order lists, delivery transfer log and a means of editing account information that includes both email accounts and FTP servers.

The **delivery system** provides a means for users to have **deliveries arrive over email** or have their product **uploaded via FTP to their server** automatically as well as the standard FTP download method. The deliverer provides two common forms of **compression** (Unix `compress' and `gzip') as well as **attachments** and **`uuencoded'** data. The deliverer is implemented in two stages and features the **ability to queue simultaneous deliveries**.

1998, October, Cloudband

Cloudband.com is a UK start-up internet resource which is focused on the Antique Carpet, Textile and Asian Art trades.

I was commissioned to provide a machine capable of **providing for their varied IT infrastructural needs**: a **web-server**, **FTP** area, **IMAP** mail, **mail service**, an **SQL database**, **DNS** and remote access through **telnet** along with full administrative and installation documentation. Following my advice, they selected a **Linux**-based system with the **Apache** web-server running **`mod_perl'** to speed their CGI program execution.

Aside from building a machine capable of dealing with a high traffic site and a near-indefinite number of users' mail I provided **technical liaison with the ISP** to ensure accurate DNS entries.

Future work is slated to involve **evaluating existing auction software** and leading the ground-up development of the **integrated piece of web-based e-commerce software**. The resource will include extensive editorial and reference material as well as both **mall** and **auction** functionality to enable dealers and collectors to trade.

1998, September, Ford Credit, Europe

Ford Credit commissioned a project to enable customers to make Settlement Enquiries over the web in order to discover details about their remaining due car repayments. This project involved using Perl and UNIX sockets to construct query packets to send and receive data from their mainframes with a web interface.

1998, June, ITV Formula One (through Eidoscope Ltd)

Eidoscope are responsible for the production of the <http://www.itv-fl.com/> ITV Formula One website which features live news updates coming directly Haymarket which are then manually posted up to the site. I was commissioned to produce **an extremely easy-to-use automated web-based publishing system** where virtually computer-illiterate authors can **upload news stories from their web-browsers** from 'The Pits'. These stories can include images taken with digital cameras.

The system additionally features both webserver and CGI-based security authentication, privileges, **image upload and positioning through a web-browser**, automated links to recent stories with summaries, **automated news re-indexing** and archiving plus remote and template-based modification of other key pages and images within the site. The system is based on a number of in-house developed custom classes that allow expansion to remotely manage content for an entire site. The software for this entire facility including **fully documented Perl classes took just five days**.

1998, Jan-May,

When I joined Soft Options (<http://www.softopt.co.uk/>) I was made responsible for providing a plan and **solution for reorganising and updating their server platform** in order to effect a considerable reduction in day-to-day administrative effort and decentralise this work. This involved: automation of existing procedures, back-ups, systems procedure documentation, web-mastering, failsafe protection (diagnostic scripts/UPS). In addition to providing the typical 'sysadmin' in-house technical support I also had client-facing duties and conducted sometimes complex technical liaisons.

Making use of my experience as a long-time programmer combining systems administration knowledge I constructed a series of web-based tools that allow non-Unix-conversant people within the company to carry out tasks on which sysadmins often spend time. Typical tasks are: **updating DNS entries, email accounts, adding & registering domains, configure per-site statistical log analysis, site documentation all spanning six Solaris- and NT-based web-servers**. All this has demanded a highly automated and consistent infrastructure for the servers and filing system.

1997-8, Sept-Jan, Syzygy Ltd, London

Syzygy (<http://www.syzygy.co.uk/>) is a 25-person 'new media' company with a strong list of very successful international clients. I was promoted to **Chief Programmer** within a month of joining. My primary developmental responsibilities were to create software for an online game for **Cartoon Network** (<http://www.cartoon-network.co.uk/game>) and implement a Management Information Systems marketing training tool **Intranet for Procter & Gamble** (URL on request). As **technical project leader** in a small, growing company I have been involved with suggesting and setting

company **technical policies and systems**. In the absence of a HR dept, I have also been responsible for **recruitment, interviewing, in-house training** of new employees **and supervision of technical contractors** at Syzygy.

All technical projects have made extensive use of a variety of database back-ends (**Oracle, Informix** and **Access**) running on a variety of platforms (**HP/UX, Solaris** and **NT Server 4.0**). I was responsible for installation and **maintenance of these databases and writing Perl/SQL CGI** software communicating with these **DBMSs remotely over a LAN**. The Procter & Gamble project involved **considerable use of non-trivial JavaScript** to effect user-tracking and intuitive database administration. The vast majority of all software running on these two sites I have designed, submitted specs, discussed budgets, architected, implemented and documented myself.

Syzygy's most technically demanding web-site has been Cartoon Network's multi-user online game. It is written entirely in **Object Oriented Perl 5.004** connecting to an **Informix** database server. It features secure registration, home-page personalisation, email verification, obscene language filtering, multi-user interaction, security/cheat-prevention mechanisms, extremely advanced state management, league/high-score tracking, email-like messaging facility, integration with twelve sub-games, automated graphics rendering, entire site pre-compilation to HTML, web-based map design and admin facility and over 200KBytes of scripts and modules.

Much of Syzygy's recent work has involved sites with considerable server-side effort. A lot of my developmental work has gone into **creating innovative technical solutions to reduce server computational and network costs** to even enable aspects of various sites to operate at all.

1997, July Quintek Ltd, Bristol (for Pilkington Optronics Ltd)

Quintek were contracted to produce some state-of-the-art video-imaging hardware and software. I was responsible for creating a three-week feasibility study and designing suitable architectures using state-of-the-art Field Programmable Gate Array hardware technology in concert with high-end DSPs to provide real-time high-resolution portable video-processing equipment.

1996-7 Quintek Ltd, Bristol

I designed an Internet security video application using Java/Perl/C/HTML to implement a bespoke Client/Server system operating over a slow Internet link. It enabled live and recent monitoring of a number of remote camera sites. During this I administered a remote web-server and designed the architecture for a proprietary UDP/IP image server to operate in conjunction with a standard web-server. All the file management routines, many binary data-processing tasks and a server-side database and associated CGI scripts for the captured video sequences were written in Perl and C.

1995, Summer Inmos Ltd, Bristol

I rewrote and significantly enhanced a technical document library system over the course of a ten-week project. Having evaluated the project requirements I chose to write it in Perl 4. The system consisted of a number of interacting modules with which users all over the company could add, remove, update, index, preview, print and co-author documents with a user-editable change history.

1994, Summer Inmos Ltd, Bristol

I rewrote sections of MicroEmacs, a shareware editor that had been modified for in-house use. I converted the sources to ANSI C and made some significant optimisations to reduce start-up delay and correct bugs in the folding (cf. outline) algorithms. I was also responsible for updating a library of test programs for QA within the parallel processing compiler group.

1993, August K-Par Ltd, Bristol (for Bristol Royal Infirmary)

A four-week mini-project before starting University I developed a data extraction tool in C for a medical CAT-scan system. Patients' scan records needed to be analysed and relevant data extracted from a proprietary file format to be used for display on a dedicated medical imaging- and data-server.

1993, December Quintek Ltd, Bristol

During a four-week vacation mini-project I wrote a demo to show-off the abilities of a high-end graphics processor (Weitek P9100) being used in a Transputer-based video capture/display board developed by Quintek. C and OCCAM were used to directly manipulate the graphics processor's registers to show how it could be used to render polygons extremely quickly in a parallel processor environment.

I have since worked during vacations for Quintek on a variety of projects that have included writing bespoke network configuration and boot utilities, an automatic Perl source code-to-documentation generator and a number of C- and OCCAM-based utilities.

1992-3 Inmos Ltd, Bristol

In the first six weeks of a 12-month placement I became familiar with C, Unix and Transputer technology by writing a complete demonstration explaining the parallel and multitasking abilities of the Transputer.

For the rest of the year I wrote and developed Transputer-network analysis and debugging tools using C and OCCAM in a Unix/C environment, executing on arrays of Transputer. During that time I was exposed to Xlib and Motif programming.

Early years Bristol

My computing interest began with an Oric, Dragon 32 and for the most part a Commodore 64 where I wrote hybrid BASIC and Assembly language games, utilities and kernel extensions. In December 1989 (age 15) I had one such game published including a technical tutorial for BASIC/Assembly optimisations and shortly afterwards a maze generator used to explain Assembly language and algorithmic optimisations.

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Page last employed: 06-Mar-2002			resume(at)paulm.com		