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Personal Information

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Professional Career Steps

From	To	Profession/activities
03/1991	05/1992	**System analyst** at the UNI-ORG GmbH, consultancy in Dortmund, Germany
06/1992	03/2007	Independent contract software engineer
06/1992	08/1996	Owner of **mjh-EDV** Beratung in Hagen, Germany (techn. consultants, development)
12/1999	02/2002	Co-founder and manager of the **Nessus Consulting SARL**, Paris, France
02/2003	03/2007	Founder and CTO at **Maxina GmbH & Co. KG**, Neu-Isenburg, Germany
03/2007	12/2011	**Chief developer** and consultant at 7Safe Ltd, Cambridge, UK
01/2012	07/2015	**Lead developer** at 7Safe/PA Consulting Group, Cambridge, UK
08/2015	...	Contract software engineer, **mjh-IT Ltd** (Director)

Summary

Jordan Hrycaj **Contract Software Engineer**

Jordan is an experienced software engineer for more than 25 years. His experience includes electrical engineering research and hardware development as well as management consulting. He focuses on software development, in particular system functionality and architecture (embedded, middleware, microsystems). He is an experienced coder.

Jordan has shown to successfully adapt to rapidly changing project basics and conditions (goals, tools, staff, management) and is able to switch roles quickly (management consultant, developer/coder, project lead, coach).

Jordan has worked as line manager, lead developer, CTO, and project manager.

His university education comprises Mathematics (number theory, statistics, OR), Economics & Business, and Electrical Engineering/computer technology research. He worked as maths Lecturer at Colorado University.

Expertise	Experience	Qualifications	Recent Clients
• Hard- and Software development • Embedded, Cross-development • IT-security • Middleware and database (e.g. Perl)	• CTO, lead developer • Project manager • Coder, developer • Open Source developer	• Dipl.Math. (~MSc,1st)	• SOLiD • PA/7Safe • D-Link • Daimler • several Banks • Lufthansa Systems

Most recent commercial projects (last decade)

9/2015 – 11/2016
13 months

SOLiD Gear Inc

Re-development of network management gateway and monitoring tool for large scale wireless hardware.

Originally brought in for troubleshooting I re-developed the existing application. This included all aspects of the inner workings. The gateway systems was virtualised and deployed alongside the legacy system so comparison and fine tuning against the legacy system is possible.

I supported the process of customer base re-deployment and hardware troubleshooting.

Role: Architect, tester, developer, deployment organisator, DevOp, Trainer/Instructor
Tools: Git/Hub, VirtualBox, tcpdump/Wireshark, NetSNMP, Perl, Linux OS
Languages: Perl, C, ASN1, SQL, PHP, JQuery

1/2012 – 7/2015
3½ years

PA Consulting
7Safe

Development of web-browser based presentation tool for forensic search tool DocDiscovery.

This was a continuation of my previous 7Seec/DocDiscovery development as well as a new presentation concept using browser technology. The result was a small single binary tool comprising a full presentation suite (JQuery, DataTables, JsTree) as well as NTFS file system, PST and zip/office file (et.al.) decoders. The sizes of these binaries do not exceed 1.3m.

Role: Lead developer
Additional tools: Google Closure, Jquery/AJAX, Mozilla BugStore, Agile
Additional languages: JS, Perl, HTM, PHP, JSON, X.509, Python
See more on http://mjh-it.com/post/c-project/

9/2007 – 12/2011
4 years

7Safe Ltd

Development of forensic search tools 7Seec

I developed ad-hoc (as opposed to indexed) scanning tools for credit/debit card numbers as well as more general data objects (later called DocDiscovery) in unstructured data. Research and engineering took place with changing development crews. The tools were successful nearly from the inception in 2008. It provided a valuable triage tool set for the breach squads reducing the number of data images to be taken at the customer site. Triage can take place while the IT systems keep running.

Role: Chief developer
Tools: CVS/Svn, Git, VirtualBox, GCC/Clang/Mingw on Linux targeting all Posix and Windows>98, also VisualStudio, GDB
Languages: C/C++, Perl, m4(autoconfig)
See more on http://mjh-it.com/post/c-project/

10/2005 – 5/2006
6 months

Maxina GmbH
(Dlink Taiwan)

Technical conception and project management for the VoIP/CPE project,

For this project I was responsible for the implementation of the embedded firmware (XScale, Cologne HFC-S/ISDN, analogue) based on Linux and the telephone switching software Asterisk. I was also responsible for the final decisions to be made with the hardware development.

I developed a new middle ware around an event driven, embedded data base/registry that communicated with the firmware for an existing Lan/Wan gateway product. Thus, it was possible for both, the GUI and application systems developers to design and work on different configuration scenarios (e.g. the Asterisk configuration is not known as really easy to configure). This approach saved time and money.

Role: CTO, project manager, developer

5/2005 – 9/2010
20 months discontinuously

Daimler Chrysler

Mobile IT automotive, development of the test environment

Programming systems used were mainly PERL, C#/COM/CANoE, C/C++, Java. As they are needed, the Windows 2000 and Linux systems emulated WWW servers, WAP servers, mobile phone modems (for Internet access), audio head set, MOST or CAN gateways

Role: Contractor, tester, developer
Tools: Svn/Git, VirtualBox, C#/VisualStudio, Perl, CANoe, Windows/Linux/Embedded

Appendix A – IT Experience and Skill Set

Programming Languages

- Programming languages
  - C/C++, Nim(rod), Perl, C#, PHP, Java, Sh/Bash, Python, Ruby, Lisp, SQL, SQL/SP
  - Assembler: IBM 360/370, Intel x86
- Programming paradigms
  - OO, object based, imperative, functional, embedded, event driven, concurrent, parallel
  - OS kernel (driver), OS/network level/middleware, data base, web oriented UX
- Development platforms
  - Visual Studio, Eclipse, NetBeans, Emacs
  - Cross-development (Posix, Windows, embedded), Git, SVN, CVS
- Web oriented development
  - C/C++, Perl/ePerl, PHP, Python, Apache/embedded, Ngnix
  - HTML/XML/CSS, JavaScript, jQuery, Bootstrap, AngularJS,
- Implementation architectures
  - Posix (Linux, MacOS/Darwin, SunOS, others), Windows
  - Embedded (Linux, WinCE, Qnx), Intel, Motorola, ARM, TI
  - VmWare, VirtualBox, Docker, Vagrant
  - X.509, pgp, CA/PKI, IpSEC

IT Networking Software Development

- Transport protocols
  - Ethernet and TCP/IP based protocols, MOST, MODBUS, Indactic, serial (e.g. RS232)
  - Madi (Audio over Ethernet), POTS, ISDN, Bluetooth, 802.11, DHCP/Bootp
  - L2TP, PPP, SLIP, QoS, VLAN, IpSEC, VoIP, RTP, SSH, US20050226275(patent)
- Application protocols
  - SIP/STUN/(S)RTP, SMTP/POP/IMAP, HTTP/TLS, X.509, X.500/Ldap, FTP, WAP
  - PAP/CHAP

Roles and Industries

- Roles
  - Head/managing developer, (sole) developer, line manager
  - Software architect/consultant, network security architect, DevOP
  - Management consultant (bank/finance)
- Industries/sectors
  - Aviation
  - Automotive
  - Bank
  - IT network supplier/telecom
  - Electrical equipment supplier (power plants)
  - Industrial gases

Appendix B – Older selected projects

1/2005 – 5/2005 4 months GSI Darmstadt	Research Institute, conception, installation/programming of a central RADIUS system for remote data access (Cisco VPN3000, IPSec, NIS, LDAP etc.) **Role:** Contractor, developer
10/2004 3 months DEKA	Bank in Frankfurt, security audit, security concept (company and production data network, data surveillance tools, SLA) Having outsourced the support for the production systems, a productive server farm should be officially checked/audited for security. It consisted of several hundreds of Solaris, HP-UX and Linux systems. The most cost effective solution for the customer was to prepare a single audit/analysis script and have it run on every machine. This script was carefully checked and run by the outsourcer and it collected the required information. For processing these data, I developed analysis and statistics tools. Based on that, the security report (with recommendations) was assembled.
07/2003 17 months discontinuously Daimler Chrysler	Mobile IT automotive, protocol functionality and automated tests, TCP emulation, WAP/PPP/GSM, GPRS. The test environment developed earlier was extended for testing with the protocols Bluetooth and CAN. New production series were integrated.
06/2003 2 months Walther EDV	SME (on behalf of a bank in Baden Württemberg), porting of OpenSCEP onto WINDOWS for a Cisco/CA-connection.
04/2002 15 months discontinuously Daimler	Mobile IT automotive, major US equipment supplier, security conception, teleinformatics, security and test environment for the production series. An earlier developed test environment was improved and extended and the test results became more accurate. Organisational issues were met (formal test plan and check lists). There were data throughput measurements developed for MOST. Some sub-protocols of MOST were checked for consistency, theoretically and practically. Improvements and fixes were delivered.
02/2002 1 month BOSCH Sicherheitstechnik	Major automotive & security appliance supplier, Frankfurt office, security audit, security concept (company network, data surveillance tools, SLA)
01/2002 1 month IKB New York	New-York bank, Internet provider change, security concept, remotely managed change of the operating system for a long term supported customer (Linux, email, Web, SSH/crypt)
08/2001 5 months COLT	Development support for security equipment and products at a UK telecom network supplier in Frankfurt - Product concept/implementation for the marketing dept. (firewalls, IDS, network maps) - Computer forensics (to assure evidence, analysis) - Support for the establishment of a security organisation (ITIL, QA, BS7799/ISO17799).

01/2001

9 months

Nortel Germany

Analysis, conception and implementation for secure email for a Canadian network supplier in Germany, regarding common and company law, conception and implementation for the corresponding security policy (Entrust, PGP/CryproEx roll out, PKI/MS-Access, German and English security policies, works council agreement, bilateral customer contracts etc.)

A cost efficient solution for trusted email communication was quickly needed. It became necessary as my customer's customers rejected written communication in current projects. Although there was an international corporate PKI available, we decided in favour of a PGP based solution mainly because of customer demands and the emerging eastern European market.

Together with the security officer and the legal department I developed the operational and the legal framework for using encrypted/signed email with PGP. This included the key roll out and the design of a CA run by my customer. I was then responsible for this project to be accomplished.

09/2000

20 months discontinuously

Daimler

Mobile IT automotive, major US equipment supplier, security conception, test environment for the production series for the protocols POP3/SMTP over TCP/IP and MOST.

Initially, I advised my customer on the early requirement specifications for the embedded TCP/IP, GSM and MOST/MAMAC48 applications. This covered the functionality and security of the systems that were to be designed. Later on, I was to check my customer's requirement specifications for correctness.

While the systems were implemented, I designed and deployed efficient test systems using Linux and Windows NT/2000 in order to verify that the protocols TCP/IP, MOST and GSM and the applications built on them were working correctly.

Such a solution was not only cost efficient but it made it possible to intercept the protocols on every layer. So it was possible to quickly find and verify the shortcomings of the protocols and applications as delivered by the vendors.

05/2000

1 month

IBM/UBG

Concept and maintenance of the firewall systems at the Expo/2000 for major network supplier, (Linux, SSH/crypt, video/audio streaming, Java/DB2/WinNT)

10/1999

1 month

Frauenhofer Darmstadt

IPSec studies for the Telecom management, research institute in Darmstadt (X.509, PKI, IPSec)

02/1999

7 months

Commerzbank Frankfurt

Controlling, client/server accounting for services at a major German bank, project manager, accounting for services (MVS/MQSeries/DB2)

The controlling department needed a solution for the problem of a fair accounting of the client/server transactions on the branch banks.

Showing the impossibility of this task under the given calculative restrictions I also showed that there would be no more client/server transactions in the near future, at all. This was due to the new technical system architecture which was to be introduced.

Consequently, I was to fix that successfully in a particular ad-hoc project.

04/1998

8 months

Lufthansa Systems

German airline systems integrator, design and implementation of network service accounting and billing (PERL/MySQL/Oracle, works council, data backup)

For capacity planning and troubleshooting of HTTP proxy services (more than 3500 on-line users out of 10k at that time) I developed a data base system that processed the proxy log data and produced some statistics.

I convinced my customer towards letting me extend this technical data base to a general three layer accounting system (collecting, processing, archiving data) so that all network services could be accounted and billed to the whole organisation. The accounting system was implemented under Perl/MySQL with a HTML-GUI on SUN-Solaris. The billing system attached to the accounting system was implemented on VB/Access under Windows-NT (with SAP connection).

The accounted services were billed by data volume and service type as Internet access (proxy), VPN, firewall (DMZ, email, Extranet etc.) My customer's department billed DM 50mio/a (≈ £ 17mio/a) with this system (the time when I was there).

10/1997

8 months

Lufthansa Systems

German airline systems integrator, concept and implementation of the company VPN, SAP over VPN implementation, organisational and technical implementation of the access systems world wide available (SecurID, ACE server, administration roles).

Using SecurID token cards I realised a secure authentication system for the organisation. It covered the technical implementation, the organisation of the token roll out, the management and the organisation of the access roles (grants/rejects) of the individual card holders. There was also the customer support/help desk to be considered.

As there was a demand of accessing SAP from non-Europeans sites (African, Russian, and Arabic countries), I used the SecurID authentication system together with SSH and build a cost effective and secure VPN that worked well enough with SAP over most connections available (there remains the TCP over TCP traffic control problem on unstable network links).

02/1997

8 months

Lufthansa Systems

German airline systems integrator, concept and implementation of the company Internet access, services and firewalling.

I designed the internal Internet access for the whole organisation.

The customer WWW browser access was realised via SQUID proxies. Missing functionalities were implemented as needed and fed back to the open source community in order to find it in the upcoming releases getting rid of taking care of unnecessary patching.

An internal DNS was provided. The problem to be solved was that there existed already an internal naming system as well as a non RFC1918 IP address schema colliding with the official Internet DNS. So the same DNS host name might have had a different meaning on the Internet and the Intranet even though there must be WWW access to the Internet (from the Intranet).

The overall company firewalling architecture was mainly my work (based on Checkpoint/SUN-Solaris). In particular, I designed the trusted network areas (admin LAN) and the administrative VPN access from Windows NT (based on SecurID/SSH). By using VPN mechanisms I made it possible (under cost and security considerations) to connect to external subsidiaries and their firewalls without having employees travelled there.

03/1995

12 months

ABB Ratingen

Power plant supplier in Mannheim, Germany and Baden, Switzerland

- gateway operating system
- concept and implementation of a POSIX based non-preemptive operating system,
- yarget system was pSOS on a Motorola/VME bus architecture.
- development coordination, project and communicated with external resources.

02/1994

7 months

BASF

Chemical factory, Ludwigshafen, Germany,

-Indactic 21 gateway (see below for another transmission protocol)
- further development of an event driven application system based on O'Tool.
- project development coordination, generalisation for other protocols.

06/1993

3 months

Linde

Industrial gases provider, Leuna, Germany, Modbus gateway,

- development of a PC-based gateway for a multi protocol system (MSU)
- multiple Z80-sub systems
- development of event driven application system
- Z80-operating system O'Tool

An embedded application system was developed for a gateway/field protocol translator for full-duplex serial industry protocols. This is used to connect process control systems with the field systems/switches. A characteristic for the field protocols is that mostly system changes are transferred so the gateway has to be state aware.

In order to meet real time criteria, I used a well known set of messages (loosely modelled after Smalltalk) for handling operating system resources (no garbage collection). To make the system robust, all resources had a finite life time (no permanent dead locks).