FRANK REKER

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D–63849 Ebersbach

Main Qualification

- Linux Kernel Developer
- C-Programming
- Unix/Linux System and Application Programmer
- Programming in embedded environment
- Project Management
- IT Security

Language Experiences

- German: native
- Italian: business fluent (written and spoken)
- English: business fluent (written and spoken)
- Spanish: good knowledge (written and spoken)

Professional Experiences

Programming and Documentaition Languages

C, C++	+++
Bash	+++
HTML, PHP	++
Java, Perl	+
doxygen, LaTeX	+++
UML	+

Linux

Linux Kernel Programming	+++
Linux Driver Programming	++
Linux Realtime Programming	++
Networking (iptables, tc, routing, VPN, ...)	+++
Administration, Security	+
Debian, Openwrt	+++
Ubuntu, Redhat, SuSE, yocto	+
embedded Linux	++

Other Knowledges

Cryptographic protocolls	+++
Databases (Oracle, MySQL, SQLite)	++
Compiler construction	++
Solaris	++
Parallel computing	++
Interdisciplinary knowledge in physic	+++
Interdisciplinary knowledge in electrical engineering, communication engineering, measurement engineering	+

Project History

A full list of all projects you can find at www.reker.net/en-reker.html.

- December 2023 - December 2024
  Qos implementation for a satelite modem (Linux embedded).

  Porting of a QoS (Quality of Service) implementation from Linux kernel to user space. This included the following components (among others):

  - A DiffServ implementation (QDisc).
  - Loadbalancer
  - Packetfilter
  - Encryption
  - Header Compression

  Client: ND SatCom GmbH
  Location: Immenstaad (DE), remote

  Applied technologies: C, Linux Kernel programming, embedded Linux (Yocto).

- January - May 2023
  Driver development (Linux embedded).

  - Development of a virtual bus (IBA) to communicate with hardware components over a network interface, inclusive a register map abstraction.
  - Development of a DSA driver for the KSZ9897 over the IBA interface.
  - Porting of a proprietary driver for the LAN7801 over IBA from kernel 3.18 to 5.4.
  - Bugfixing in the wilc1000 network driver.
  - Development of an interface (phyreg) to access network device registers from userspace.

  Client: MC Technologies GmbH
  Location: Hannover (DE), remote

  Applied technologies: C, Linux Kernel programming, embedded Linux (OpenWRT).

- August - December 2022
  Porting a network driver (igc) from kernel 5.19 to kernel 5.4.

  Client: secunet Security Networks AG
  Location: Essen (DE), remote

  Applied technologies: C, Linux Kernel programming, embedded Linux

- October 2014 - November 2016, June 2017 - July 2022
  Research and kernel develepment of multipath protocols.

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- Development and specification of a multipath protocol on top of DCCP (multipath-dccp.org).
- Extending the MPTCP implementation in the Linux kernel with a priorisation scheduler and others.
- Implementation of an UDP and (MP-)DCCP tunnel device in kernel space.
- Modification and porting of several network drivers (e.g. Intel AX200D2WL Wifi Card, Siella Wireless LTE modem (MC7710), Edimax AC1750 USB-Wifi Dongle).
- Configuration and administration of various test servers.
- Attending of several field trials.

Client: Deutschen Telekom AG
Location: Darmstadt (DE), Berlin (DE), Skopje (MK), remote.

Applied technologies: C, Linux, Linux Kernel programming, Bash, Debian, Ubuntu, OpenWRT, VPN, network administration, Security.

- April 2019 - October 2021
  Development of a library to control LTE and 5G modems (e.g. Quectel RM500Q).

  Client: Wago GmbH & Co. KG
  Location: Minden (DE), remote

  Applied technologies: C, C++, (embedded) Linux, Bash, LTE-Modems.

- April 2008 - December 2013
  Development of a firmware for a precision power meter (linux embedded).
  - The central communication interface among several the various software components.
  - Remote control interfaces (over LAN, RS232, ...) inclusive an own programming language etzel.
  - Coordinating the development of the other developer involved.
  - Administration of the company IT.

  Client: ZES Zimmer Electronic Systems GmbH
  Location: Oberursel (DE)

  Applied technologies: C++, C, Linux, Linux embedded, Linux realtime, LLVM, flex, bison, LaTeX, doxygen, Unit-Tests, Debian, Gpib, kvm.

- December 2008 - January 2011
  Development, installation and support of a high availability server (hardware and software).

  A cluster solution with five node server was developed. Each containing a Nvidia Fermi module. The server were connected in a redundant HSR like network. I built the hardware as well as software components. Those included an own cluster software (rcl) as well as a bonding driver for the redundant network. The designed bonding protocoll was similar to the HSR protocol, which was brand new those days. But it was devoloped in software without hardware support.

  Client: Kutting-ITS
  Location: Eberswalde (DE), remote
  Applied technologies: C, Linux, Linux Kernel, HSR, LaTeX, Debian, Ubuntu, KVM, IPMI, OpenCL, Nvidia Fermi

- October 2005 - July 2009
  Development of a system (LegacyRecorder) to archive all automaticaly generated emails plus the HTML-/XML-files of the web portal of RossoAlice (Telecom Italia SpA) in a

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WORM of EMC[2]. The saved files were further indexed in a oracle database for fast search via a web interface.

Client: Telecom Italia SpA
Location: Pomezia/Roma (IT)

Applied technologies: C++, Linux, Oracle-DB, ProC, XML, Dokumentation via UML, Java, JNI.

- September 2003 - December 2007
  Development of an interface (BufferCA) for a certification authority (CA) of the Telecom Italia SpA.
  - Encrypted and signed email communication - using the hardware crypto device HSM by Baltimore - among the various components internal and external of BufferCA.
  - Verification of the incomming requests (for creation, revocation, de- or reactivation of certificates) and its storage in the database.
  - Distribution of the requests to the corresponding CA.
  - Collecting the results and resending to the requester.

  Client: Telecom Italia SpA
  Location: Pomezia/Roma (IT), remote

  Applied technologies: C, Solaris, Oracle-DB, ProC, Baltimore-HSM, PKI, html, cgi, doxygen.

- February - December 2006
  Development of CustomerLog to archive all SMS, MMS and all WAP accesses in an oracle database for fast access by the customer service of TIM (Telecom Italia Mobil).

  Client: TIM - Telecom Italia Mobil
  Location: Pomezia/Roma (IT), remote

  Applied technologies: C, Linux, Oracle-DB, high performance programming, doxygen, Java, JNI.

- May - June 2006
  Development of an emulator to send mass of MMS used to stress test the system of Telecom Italia Mobil.

  Client: TIM - Telecom Italia Mobil SpA
  Location: Santa Palomba/Roma (IT)

  Applied technologies: C, Linux, stress test

- February - July 2003
  Support of the porting of some SNA application from IBM mainframes to solaris. The project was done for ICCU (Istituto Centrale per il Catalogo Unico) in the national library in Rome, Italy on behalf of Sun Microsystems Italia SpA.

  Client: Sun Microsystems Italia SpA
  Location: Rome (IT)

  Applied technologies: C, Solaris, SNA, IBM-Mainframe.

- February - July 2003
  Development of a high availability cluster solution (KCluster).

  Client: Babel srl
  Location: Pomezia/Roma (IT)

  Applied technologies: C++, Linux, Solaris, AIX, doxygen

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- December 2002
  Training course (as Speaker) about Solaris realtime and Solaris driver programming.

  Client: Oerlikon Contraves SpA on behalf of Sun Microsystems Italia SpA
  Location: Rome (IT)

  Applied technologies: Solaris, Solaris realtime, Solaris driver programming

Education

- Master (german Uni-Diplom) in computer science attained at the university RWTH in Aachen (Germany) in April 2002.
  Specializations: Network and telecommunication systems, operating systems, parallel programming, compiler construction and cryptography.
  Title of the thesis: "Integration of single sided communication into an MPI-library (Message Passing Interface) for memory coupled PC-cluster."
  Grade of the thesis: 1.3 (≙ A (94Final grade: 1.8 (≙ B (84
- Secondary school diploma ("Abitur") attained at the "Goethe-Gymnasium" in Bad Ems (near of Koblenz in Germany) in 1993.
  Final grade 1.9 (≙ B (82
- UML training course in Pomezia, Italy in march 2004

Working History

- since August 2013
  Freelancer in software development in Germany. Since July 1st 2023 with one employee.

  Among the main customers are: Deutsche Telekom AG, Wago GmbH & Co. KG, MC-Technology GmbH, ...
- April 2008 - July 2013
  Executive employee for ZES Zimmer Electronic Systems GmbH in Oberursel (Germany). Involved in the development of firmware for precision power meters.
- 2009 - 2010
  Development and sales of high availability clusters under linux.
- October 2002 - March 2008
  IT-Consultant in programming (and operative activities) in linux and solaris environment.

  Among the main customers are: Telecom Italia SpA, Sun Microsystem Italia SpA, Oerlikon Controves SpA, Wind SpA, Sogei SpA
  Location: Italy
- October 2006 - July 2008
  Running an own IT company with two employes.

  Location: Kadenbach (DE)
- April 1999 - July 2000
  Programmer at "DATUS AG" in Aachen (Germany), a medium sized company, that produces network and telecommunication systems. I worked for the network management section as a programmer in C and C++ under hpux and Linux.

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- December 1997 - July 1998
  System administrator at the chair for technical thermodynamics at the university of Aachen (RWTH).
- December 1995 - October 2000
  Computer store in Aachen, Germany.

Personal Information

- Job titel: Software engineer
- Name: Frank Reker
- Born: march 2^{nd} 1974 in Frankfurt (Germany)
- Nationality: german
- Martial status: married, one daughter

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