

# Paul Frederick Rapp

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## Software Systems Engineer, Architect, Developer, Manager, Technical Writer

More than 20 years' experience as Software Systems Engineer and Software Architect in real-time and systems programming, Systems Analysis and Design, Systems Integration, and Software Project Management. Applications include Command and Control, Communications, Mission Planning, Intelligence, Simulation, Local Area Networks, Scientific Data Processing, Satellite Ground Systems, Telemetry Processing and Systems Test. Extensive use of the UNIX, Linux, and VAX/VMS Operating Systems. Proficient in viewing systems from the "Big Picture" down to specific details, product-line innovations have resulted in savings of over a million dollars.

### CORE COMPETENCIES:

- Unix, Linux, Sun/Solaris with Bourne, Korn and C Shells, Posix, X-Window/Motif, GNU, Gnome
- DEC VAX/VMS, OpenVMS and PDP-11 including VMS Internals
- Networking with TCP/IP, DECNET, Talarian, Orbix/CORBA, Unix System V IPC, GPIB
- Graphics programming with PV-WAVE and Dataviews
- Object Oriented Technologies, Visual Paradigm, Cadre Teamwork, Software Through Pictures
- Object Modeling Tool (OMT), Unified Modeling Language (UML), Agile SCRUM methods
- Configuration Management tools including Subversion SVN, ClearCase and DOORS
- Integrated Development Environments (IDE) Eclipse, NetBeans, SunStudio and MS Visual Studio
- Spacecraft Ground Station and Test Software (Raytheon Eclipse, Epoch 2000, OS/Comet)
- Dynamic Satellite Simulator, Satellite Test System, Distributed Command and Control System
- RT Logic ITCU and Cortex Baseband Unit controllers
- Mykotronx COMSEC encryption/decryption hardware and software interfaces
- Programming languages C/C++, Fortran, Basic, and various Assembly languages
- Java, Tcl/Tk, HTML/Web Page Development, Internet
- Independently studying Microsoft Visual Studio, NetBeans, Java, Python, Ruby on Rails, and others

### SECURITY CLEARANCE:

- TS/SSBI, DoD Secret, COMSEC/CRYPTO

### WORK EXPERIENCE:

#### 12/2016 – 06/2017: Contractor, System Engineering, Vincent Benjamin, El Segundo, CA

- Set Top Box Software System Engineer for AT&T DirecTV writing and analysis of software requirements, Feature and System Specifications.

#### 08/2015 – 10/2016: Contractor, GPS System Engineering and Integration – Test Vectors Lead, GreenDart, Inc., San Pedro, CA

- Lead Engineer for the production and maintenance of test vectors simulating Signal-In-Space and Crypto for Global Positioning System (GPS) modernized (YMCA) receiver test and evaluation.
- Completed and delivered full catalog of test vectors to government and vendors for GPS Modernized Ground User Equipment (MGUE) Increment 1 Test and Evaluation.
- Reorganized test vector configuration management, improved documentation, published catalog of test vectors matching structure on disk.
- Presentations to GPS Directorate at Space and Missile Command, Los Angeles Air Force Base.
- Writing, editing and review of technical documents (Microsoft Office).

**08/2000 – 04/2015: Software Systems Engineer, Boeing Space and Intelligence, El Segundo, CA**

- Developed architecture for a low-cost Telemetry and Command Engine for the Spacecraft Test System (STS) product line software to replace current COTS component. Requirements definition, Analysis, software architecture, design, and concept of operations specifications produced and reviewed. Software developed using Agile (SCRUM) process as a phased delivery to target use capabilities.
- Development of Satellite Test Systems (STS) Product line, a generic, high reuse, low maintenance, data driven system for Satellite Bus systems test that can test all Boeing satellite products for all commercial/civil and government customers. STS has resulted in more than a million dollars cost savings in system test operations. Next phase innovations are projected to save over an additional quarter-million per year.
- Project Engineer/Scientist for Spacecraft Test Systems. Requirements definition and specification for Next Generation Common Test Executive software. Creation of specification documents, design reviews, database definition and operation concepts. Development of defined technology.
- Proposed Unified Spacecraft Systems Engineering Database (USSED) requirements and design with XML based transfer formats between different user DBMS. Worked with DBMS team to define requirements and design. USSSED improved database efficiency across programs and resulted in significant cost reduction.
- Development of fast and highly efficient Telemetry Data Archival system, Report Generation library and applications and Unit Burn In and Duty Cycle generation software based on archive benchmarked at 65X faster than previous system.
- Test Procedure development and scripting for test equipment calibration, spacecraft Bus and Payload testing. Automated COMSEC test reducing test time from 4 shifts to one half (8 hour) shift with corresponding cost reduction over multiple vehicle tests.
- Authored portions of Software Architecture and Software Development Plans for the TSAT and GPS III proposals plus portions of SCAMPI volumes.
- Software Technical Lead for Spacecraft Test System (STS) software. Produced Software Requirement Specification, Software Design Description and Software Test Plans as well as CSCI development and integration for several satellite programs.
- Independent Non-Advocate Reviews, ISO9000/AS9100/CMMI Compliance.
- ICD 503 Activities including system hardening, scanning, audit data and process documentation.

**1997 – 2000: Software Engineer, Raytheon Systems Company, El Segundo, CA**

- Manager and technical lead for Satellite System Test software. Management of test support schedules, task allocation and tracking, software maintenance and enhancement, launch support and training. Managed 3 shift, 7 day test factory support schedules.
- Developed common API to interface multiple cross-platform computer systems over networks.

**1988- 1997: Software Engineer, Hughes Information Technology Systems, El Segundo, CA.**

- Responsible Engineering Authority for Software Development of multi-constellation Satellite Ground Stations. Applications included calibration, measurement and monitoring software, trending and evaluation subsystem, re-hosting of system from HP-UX to Sun/Solaris, Command and Control software for Satellite Ground Station and System Test, automated scripting execution.

**EDUCATION:**

- California State University, Northridge. Double BS in Physics and Computer Science

**AWARDS:**

- Hughes Information and Technology Systems Outstanding Performance Award, 1997
- Boeing Associate Technical Fellow, 2006
- GreenDart Customer Value Award, 2016