Senior Software Engineer Senior Software Engineer Senior Software Engineer - Project 1# Comcast Xf3 Philadelphia, PA 15+ years of experience in Software Design, Development, Maintenance, Support and Testing in Embedded, Networking, Telecom domain, Video and Audio Domains. Worked with Verizon, Comcast, Cisco, Broadcom, ViaSat, Adtran and various Routers and Switches, Set Top Box Clients. Involved (Development, Bug fixing) in the deployment of Verizon's FiOS Quantum Gateway Routers, which successfully deployed 3.5 million routers across USA. Strong knowledge in all phases of the Software Development Life Cycle with experience in Waterfall, Agile (Scrum) and Lean Methodologies. Working knowledge with L2/L3, TCP/IP Protocols, OAM, Y1731, PPPoE, UPnP, TR069, DNS, ZeroConf, QoS, VLAN. Worked on IOT devices like connected home, door sensors, flood sensors, water sensors, bulbs. Familiar with the RTOS such as VxWorks, Embedded Linux flavors. Good working experience with Data structures and Algorithms. Hands on experience with Veriwave for TCP, UDP, Wifi testing. Hands on Experience with Arris IPC, VMS, FNE setup boxes, Verizon FiOS tools and applications. Extensive experience in working on various test strategies and preparing Test Plans, Test Cases Test summaries, use case analysis, User story creation and Analyzing Test Results. Working knowledge in the Software Configuration Management - UCM (Unified Change Management), Configuring ACS, HDM Servers and loading data modules, designing and developing interfaces for TR069. Working experience with the Code Collaborator (for Code reviews) and Coverity (for Defect Analyses). Working experience in the source level debuggers such as GDB, J-Tag, Serial Console. Involved in Object oriented programming concepts like inheritance, polymorphism. Hands on experience with IPTV devices, and configuration and testing them. Working experience in Requirements gathering, Documentation and Detailed Design for the Coding, Integration, Unit testing, Functional Testing, System Testing. Work Experience Senior Software Engineer Project 1# Comcast Xf3 - Philadelphia, PA February 2018 to Present Project Description: The XF3 XFINITY Broadband Gateway is an integrated EPON compliant eDVA to provide Comcast Digital Voice and High Speed Data services. The XF3 XFINITY Broadband Gateway is an integrated router with wireless a/b/g/n/ac with simultaneous dual band 2.4 GHz and 5 GHz support. 802.11b/g/n support

for 2.4 GHz band and 802.11a/n/ac support for 5 GHz band. Key Duties: Triage customer reported issues and issues originating from Field for data analysis. Troubleshoot issues in RDK Broadband, Video and Camera devices. Used various tools Splunk, Tableau, Einstein, Xray etc to review device logs to get to the root cause of the issues. Interact with various teams within the RDK Team (Development, Release Management, Tools, Test etc..) constantly on field issues. Provide technical help to the Support teams and the Customers. Review code to understand functionality and help resolve field issues. Document technical solutions to be shared with the customers. Proactive log Data Analysis and Metrics. Environment: C, C++, RDKB, Jira, Linux, Shell scripting, Routers, STB, FNE, iPerf, Git, Jenkins, Confluence, xRay, Splunk, Tableau, Scout, Einstein360, Senior Software Engineer Project 2# Verizon FiOS - Ashburn, VA January 2015 to January 2018 Project Description: Verizon FIOS is a digital multi-channel television and Internet service provider. Verizon was one of the first major US carrier to offer fiber to home. They also offer access to hundreds of channels of quality programming and Video on Demand (VOD). I have involved in Tier4 support for FiOS TV routers deployment and maintenance. Performed numerous Live troubleshooting customer setups and collecting logs, analyzing the setup and root causing the issue. Contributions made: Involved (Development, Bug fixing) in the deployment of Verizon's FiOS Quantum Gateway Routers, which successfully deployed 3.5 million routers across USA. Contribute to all aspects of the product life cycle (requirements, concept, design, development, automated testing and support). Involved from Design phase to Development, Deployment of the product and assisted in support later. Provided regular feedback to the internal engineering and management teams to continually improve the builds released to the client. Participated in number of customer visits for troubleshooting the issue and root causing it. Co-ordinated with different vendors, customers. Involved in Troubleshooting, configuring and monitoring routers, Set top boxes, FNE, MoCA bridges, and other fiber optic backend solutions. Worked extensively to recreate customer setup/issues and to root cause the issue. Handled various devices like gaming products, apple products, amazon products, many more latest products to understand, recreate customer issues. Worked closely with the internal and external cross functional groups to identify

problem root causes and address issues. Collect and analyses performance data. Collaborate with third-party technical team to jointly investigate and root cause issues reported in the field. Worked closely with HW vendors WNC to root cause hw issues of units. Worked on demand with Broadcom, Cortina, Realtek, ARRIS for various related issues. Participated in End to End testing with Verizon before releasing new products in to field. Manage the test house setups and the lab setups for the fiber optic and legacy solutions. Actively worked with the QA team, Dev teams to test fixes and new releases. Extensively worked on collecting CPU, Memory data (Automate using shell scripts) from various setups to generate reports. Environment: C, C++, Jira, Redmine, Test Rail, Linux, Shell scripting, HDM, DTI, Routers, STB, FNE, VeriWave, iPerf, Git, Jenkins, Confluence. Senior Software Engineer Greenwave Systems - Irvine, CA November 2013 to December 2014 Project Description: The uIPC is a Set Top Box (STB) that provides HD audio/video content on televisions and other connected displays (through the uIPCs HDMI or Component video outputs). Its functionality is based on Broadcom's BCM7428 system on a chip (SoC). The content displayed by the uIPC is streamed from the in-home VMS through the BHR. Contributions made: Understanding customer requirements. Proposing the design and address review comments features. Implementation of features and address code review comments. Integrate with other modules and do unit test. Understanding and working with REST API. Designing and implementation of User API's Worked on Automation of Guide, Channel change, UI testing for uIPC (setup box). Worked on Automation of REST API testing using selenium. Environment: C, C++, TCL, Linux, Code Collaborator, Shell scripting, GDB, Veriwave. Senior Software Developer KACST - Carlsbad, CA January 2013 to October 2013 Project Description: MSM is a Module Simulator Modem. It simulates real User Terminals broadband modems. For exhausting testing with more than 20000 real UT's, its real tough to maintain the Lab and cost of equipment will be very high, So ViaSat has designed and implemented Simulator devices which simulates and acts as a real UT. Contribution Made: Understanding ViaSat proprietary modems. Understanding ViaSat MSM design and propose for modifications and features. Design Test Automation suite. Implemented MSM functionalities sending and receiving traffic. Implemented

VLAN functionalities. Implemented feature supporting 250 simulated UT's in each device. MSM implementation and bug fixes implemented using C language, and Scale Control is implemented using TCL. Verify and fix all priority 3 or above priority bugs. Involved in defect fixing and issue resolution. Support other team members in resolving issues. Involved in code reviews. Used Coverity to fix the memory leaks and other bugs before product testing. Environment: C, C++, TCL, Linux, Code Collaborator, Shell scripting, GDB. Senior Software Engineer January 2012 to December 2012 Client: Broadcom Project Description: Broadcom gives Integrated SDK Kit, compatible with entire Broadcom switch family for shorter product development cycle. Our role includes checking test results of each API and verifying the new chips supports all the features. Mainly my team concentrated to fx bugs of SDK code appropriately. Contribution Made: Going through SDK API for Field (Qos), Stack, Stats, L2, L3, VLAN modules. Reading new chip features and updating the chip files for test suits. Finding bugs using automation test suits and fixing the bugs in SDK code. Understand Broadcom SDK. Understand new chipset and its features. Propose new SDK API or modifications for existing API based on new feature set. Understand and setting the priority level for bugs and features. Environment: C++, TCL, Code Collaborator, Shell scripting, Linux Environment, GDB. Software Engineer Adtran September 2010 to December 2011 Project Description: Implemented Layer 2 protocols Y1731 Loopback, Link trace Protocols, also implemented CLI and SNMP support for configuring these protocols. Contribution Made: Going through standards and Preparing High and Low-Level Design. Lead the team; participated and sometimes handled daily scrum meetings. Code reviews and test plan reviews. New MIB writing and gone through MIB Approval Process committee for MIB Approval. New CLI writing and gone through CLI Approval Process committee for CLI Approval. Handled SPRINT Demo's and Retrospective sessions. Gone through in-depth of Y1731 standards. Maintained strict Adtran Coding guidelines and took care of all code review comments. Detailed analysis and design for the functions and sub-systems involved. Application Development using C and C++ to create CLI and SNMP interfaces. Environment: Shell, C, C++, Linux, Adtran Specific OS. Software Engineer The Cisco ACE January 2010 to September 2010 Client: Cisco Project Description: ACE (Application

Control Engine) is The Next Generation Load Balancing and Application Delivery has been using in Data Center 3.0 solutions. Standalone application-delivery appliance that helps ensure business continuity by increasing application availability. Contribution Made: Understand the ACE architecture, LAB setup. Understanding customer new requirements and proposing the modifications. Requirements gathering for functionality enhancements. Resolving bugs. Support for DevTest team for test case validations. Functional testing and system regression testing. Environment: Unix Shell scripts, C, GDB. Software Engineer CDMA Femtocell January 2009 to January 2010 Client: Airvana Project Description: Femtocells are small cellular access points that allow operators to leverage existing fixed-line broadband Internet connectivity to provide their customers with enhanced mobile voice, video and broadband data services indoors, especially in the home. These Femto access points provide in-home wireless coverage and connect to mobile networks via broadband cable or DSL Internet connections. Contributions Made: Understanding IPNET stack, Understanding Femtocell architecture. Implemented framework to interact with TC through LQL. Modified IPNET IP layer source code to add outer & inner DSCP. Modified IPNET diffserv and classifier modules. QoS Client implementation to interact with user space. Used Linux-TC scheduler and type HTB queuing for scheduler mechanism. Environment: C, WRLinux 2.0, IPNET 6.6 Software Engineer ZeroConf October 2007 to December 2008 Client: EPSON Project Description: Zeroconf or Zero Configuration Networking is a set of techniques that automatically create a usable IP network without configuration or special servers. Implemented for Epson printers. Whenever the printer starts and connects LAN, automatically it gets IP using Autoconfig technology. Usually the auto-configured IPs are Link Local IP addresses. So the printer can communicate with in the subnet that means only to the Link Local IP hosts it can communicate. We implemented ZeroConf spec in the printers network stack to communicate with Routable IP Addressed Hosts also. Responsibilities: Going through ZeroConf standards. Understanding Printer network stack. Feasibility study for implementation. Re-verifying with customer about requirements and feasible features. High level design of feature and involved in addressing review comments. Implemented and addressed code review comments. Involved in unit testing and

fixed bugs found in UT. Environment: C, VxWorks, 5.5.1, Tornado 2.2.1 /2.2.0 for ARM, EPSON reference board. Software Engineer RENA February 2005 to September 2007 Client: WindRiver, Japan Project Description: The Project is based on home gateway broadband router software. The RENA is a sophisticated IC that is capable of IPV4/IPV6 forwarding packets at the hardware level and also provides PPPoE header adding/deleting to the forwarding packets. Main motto of the RENA is to forward or route the packets at 1Gbps data rate. Japan Assignment: Had been to Japan, Tokyo WindRiver office to complete the project assignment. Coding, unit testing and integration testing. Responsibilities: Feasibility study for customer requirements. Proposing design. Designing and Implementation of Logical Interface module. Designing and implementation PPPoE stack hook functions. Designing and Implementation of RENA as character device. Implementation of Logical Interface Modules addressing code review comments. Integrating with other modules and fixing the challenges. Writing Unit test cases and fixed bugs found in UT. Supporting other features by providing peer review comments and suggestions. Environment: C, Linux, MIPS, Clear case, Clear quest, Code Collaborator, Shell scripting. Software Engineer IWATSU February 2003 to December 2004 Client: Windriver Project Description: Implemented Proxy DNS feature. Responsibilities: Understanding customer requirements, Study of Proxy DNS feature. Proposing the design and address review comments for Proxy DNS features. Implementation of Proxy DNS and address code review comments. Integrate and fixed issues with other modules and found in unit test. Designing and implementation of User API's to enable, disable and configure Proxy DNS. Contributed in developing of User Interface module. Environment: C, VxWorks 5.5.1, Tornado 2.2.2 for MIPS Education Bachelor's degree in computer applications in computer applications Osmania University 2002 Skills Vxworks, Linux, Wireless, C++, Git, Jenkins, Perl, Tcl, Unix, Jira, Dhcp, Ipv6, Tcp, Tcp/ip, Splunk, Clear case, Rational, Dns, Networking, Ethernet Additional Information Technical Proficiencies: Platforms: VxWorks, Linux, Unix, Windows Languages: C, C++, RDKB, Shell, Perl, TCL Networking: Ethernet, Wireless, MoCA Protocols: TCP/IP, UDP, IPv4, PPP, PPPoE, DNS, DHCP, UPnP, Wi-Fi, TR069, SNMP, IPv6, IP_Sec, ZeroConf, SDHL Tools: Veriwave, iPerf, Debugging tools - GDB, J-Tag, xRay, Splunk,

Scout, Einstein. Cfg Management- Rational Clear case, Rational Clear quest, Code Collaborator, Git, Jenkins. Jira, Redmine, Test rail, HDM, DTI, HNM,

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