Justin Knox, B.Sc., CC

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Objective: Network Engineer

Experience:

University of Tennessee, Knoxville | Graduate Student

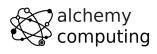**Studying for Masters of Science in Computer Science | Online, Ann Arbor, MI | Dec 2022 – Present**

- Specialization is in Data Science & Intelligent Systems; with Dual–Major in Software Engineering.

jPegDesign | Technical Specialist II

IT & Network Systems Design, Deployment & Support | Ann Arbor, MI | March 2023 – Present

- Implement and scale Managed IT Services, support and design for all levels of technical operations and infrastructure.

- Services include Network Management, Security analysis, production acquisition and integration, CAT6 & Fiber networking, Wireless Access Controllers, back–haul repeaters, Wireless (CDMA, LTE & MIMO) antennas, IP Cameras & NVR systems.

Alchemy Computing | Freelance Technical Consultant

Full–stack Development, Systems Architecture & Design | Ann Arbor, MI | Dec 2021 – March 2023

- Services include, small business infrastructure design, development & deployment, full–stack development, wireless network design and server disaster recovery.

- Notable clients are primarily in the legal, entertainment and construction industries.

Google | Operations Engineer II / DT3

Global & 3rd Party Datacenter, Engineering Field Services, Hardware, Network & Server Operations | Charleston, SC; Reston, VA | Dec 2018 – Dec 2021

- Coordinated deployment between Network, Hardware, Systems and Software Engineering teams to deploy full life cycle implementations, from schematic to deployment.

- Deployed, maintained and configured the Cisco and Juniper (3rd party vendor) network infrastructure to the Google Cloud GCVE east coast deployment. The project was completed 60% faster than was scheduled.

- Developed internal BASH, KSH, ZSH Shell scripting automation, dashboards and tools to administer and apply technical solutions to deployment, maintenance and production systems. Languages

included Python, Ruby, JavaScript/ECMAScript, SQL,HTML, and CSS on the internal CI/CD "Git like" CVS.

- Received 19 Peer Bonuses, and 2 Awards for Hurricane & Pandemic Support.

Switch LTD | Datacenter Technician

Network Operations | Las Vegas, Nevada | July 2017 – Dec 2018

- Deployed customer network configurations, utilizing Palo-Alto, Juniper, Cisco, Cienna, Dell, HP, Checkmate, Alcatel-Lucent as well as other proprietary vendor equipment.

- Coordinated with Engineering teams from over 2,300 customer deployments to provide regional technical support issues on customer provided infrastructure ranging on deployments that ranged from 1RU, to multi-campus / LAN and multi-sector-wide / WAN deployments.

- Ensured perimeter security and conducted routine production infrastructure security audits in compliance with customer provided ISO specifications.

Pinnacle Community Services | IT Support Technician IV

Information Technology | Las Vegas, Nevada | Oct 2016 – June 2017

- Implemented company firewall policies over a blend of IP Tables, Cisco ASA, and Baraccuda network technologies.

- Designed and implemented the companies network infrastructure using IPSEC over GRE on Cisco 2800 series ISRs, and 3600 series layer 2 switches.

- Provided systems administration, network design, deployment and support for the Nevada region covering 30 remote locations and three office campuses; in a mixed Windows Server 2016, RedHat, OpenSuse, FreeBSD and Ubuntu environment.

- Designed, built and implemented remote tunnels for locations over SSH tunneling.

- Engineered, provisioned and migrated end-user PC's to security hardened internal Health management kiosks.

- Designed, built and migrated the company back-end infrastructure over to HIPAA compliant, open source and license free solutions.

- Secured Windows production through Active Directory Group Policy Objects.

- Created and migrated the data storage servers to fully encrypted internal storage at rest and in transit.

- Created the secondary backup file servers and using best practices; security hardened the BSD platform.

Scientific Games | Technical Specialist II

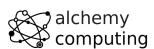**Technical Training & Documentation | Las Vegas, Nevada | Nov 2013 – April 2015**

- Designed and built the mem-cached Arch Linux prototype server infrastructure to distribute the in-house training videos out via the company WAN.

- Designed, developed and deployed the companies first Casino training laboratory. This mirrored the in-field deployment for the entire product line of gaming machines and networks.

- Interfaced with Hardware & Software Engineering teams to develop internal training to distribute to ~680 technicians globally on a monthly release cycle.

- Created training scenarios to match and emulate the field failure conditions to assist in the training of new technicians. Conditions matched that of all possible conditions seen in the field.

Alchemy Computing | Freelance Technical Consultant

Web Development, Computer Repair, Electronics Prototyping | Los Angeles, CA | Sept 2009 – Nov 2013

- Services included, small business desktop and infrastructure support, web development and design, electronics product prototyping development, wireless penetration testing, data recovery, forensic analysis, wireless network design and server disaster recovery.

- Notable clients were primarily in the legal, entertainment and cosmetic industries.

British Telecom | Network Event Management Technician III

Global Operations Tier 3, Converged Services Management Center | El Segundo, California | May 2008 – Sept 2009

- Gathered and analyzed network traffic telemetry data and prepare documentation for engineering team analysis.

- Provided Tier 3 support, including the provisioning, maintenance and performance monitoring of BT-Infonet's internet backbone; in a cross-platform; mixed vendor environment; platforms included Cisco, Alcatel Lucent, Juniper & Cienna based equipment.

- Designed, developed and implemented a computer vision application utilizing the OpenCV API to notify technicians of network alarm status.

- Protocols included: MPLS, EIGRP, IGRP, Frame-Relay, TCP/IP V4/V6, SIP, ARP, CDP, EIGRP, OSPF, BGP, VTP, Etherchannel, 802.1Q trunking, QoS, Multicast, 802.11a/b/g/n/ac, IPSec, LDAP, RADIUS/TACACS+, SNMP, NTP, VRF and HTTP/HTTPS.

- Gathered and developed the internal documentation website for incident management reporting.

Synetcom Digital | Junior Electronics Engineer

Torrance, California | June 2006 – Nov 2007

- Worked in the engineering team developing industrial SCADA radios for monitoring digital IO, 4-20ma sensor loops, PWM, and industrial video applications.

- Designed and converted existing customer networks to support fail over resistant mesh network topology utilizing FHSS (frequency hopping spread spectrum) radios.

- Developed and implemented software utilizing the embedded System on Chip encryption modules with AES256 to secure video over radio communications.

- Developed and implemented IPSec on the Active Directory LAN intranet and secured it in a mixed windows Linux development environment.

- Designed, conducted and implemented quality assurance and field simulation testing for complete product range.

- Researched and integrated emerging technologies into new products for field deployment.

DeVry University | Academic Tutor

Office of Academic Support and Instruction Services, Advanced Development Laboratory, Network Laboratory, Computer Laboratory, Electronics Laboratory | Long Beach, California | Mar 2004 – June 2006

- Tutored students in the office of academic support and instructional services, advanced development laboratory, as the resident Teachers Assistant in the network security and advanced micro peripheral courses.

- Focused specialties included:

- Network Design, Engineering & Architecture
- Wireless network penetration testing
- WEP network cracking traffic
- Network Packet analysis
- Cisco CLI commands, interfacing and scripting.
- Implementing network configurations with Java

Technical Skills & Security Tools:

Network Engineering & Assessment Tools:

NMap, Wireshark, Visio, Dia, Draw.io, MTR, ping, ARP, TCP/IP, HTTP, SSL

Coding & Programming Languages:

C, C++, Java, SQL, BASH, LaTeX, YACC, YAML, XML, HTML, CSS, JavaScript, Ruby, Python, Assembly

Cloud / Server / HyperVisor Operating Systems:

Windows 10, Windows 2016, RHEL 7, Linux (VMWare), ESXi, OpenBSD, FreeBSD, NetBSD, Docker, XCP-NG, EVE-NG, VirtualBox

Applications:

Office, SharePoint, Adobe Premiere, Adobe After Effects, Adobe Photoshop, Adobe Illustrator, MATLab, Slicer (3D Printing)

Databases:

PostreSQL, MS SQL Server 2008, MS Access, MySQL

Personal Projects:

"Homelab" – FOSS Home Computing

https://sites.google.com/view/justinsdevlab/home

Description:

Fully self hosted search, DNS, firewall, remote access, file storage, cryptocurrency mining and blockchain hosting.

Technologies used:

SearxNG, dnsmasq, Cisco 1841, Palo-Alto PA-500, OpenVPN, IPSEC, GRE, BGP (dn42), FreeNAS, NFS, Monero, Dash, Litecoin, Ethereum, Bitcoin (miners and full-nodes)

"Cyboard" – Longboard Security System and Datalogger

Description:

Raspberry Pi based "Smart skateboard", with on-device weather detection, keyfob to "lock" the board, motion and location detection for "ride-data".

Technologies used:

Python, SQLLite, GPS PA1616S, Raspbian, NeoPixel LED, Remote Control Encoder PT2262, SHT30 Sensor, ADXL343 – Triple-Axis Accelerometer

"Video LAN Checker" – VOIP Security Camera Management

https://github.com/jknoxdev/video-lan-checker

Description:

Scripts to aid the secruity camera installer, currently scans the network to detect any cameras, shows encrypted traffic status. Draws diagram of connections to router.

Technologies used:

LLaMA 7B, ChatGPT, Python, PostgreSQL, SQLLite, Azure, GCP, AWS, ARP, DNS, DHCP, RTSP, RTP

Education:

(in progress) Master of Science in Computer Science

University of Tennessee, Knoxville, Dec 2022 – Present

Web Development Full Stack Bootcamp

LeWagon, Rio de Janeiro, Brazil, June 2021 – Sep 2021

Bachelor of Science, Computer Engineering Technology

DeVry University, Long Beach, California, Oct 2003 – March 2008 GPA: 3.58, Summa Cum Laude, Academic Honors: Dean's List, 2003 – 2007

Certificates:

(ISC)² Certified in Cybersecurity / CC

International Information System Security Certification Consortium (ISC)² Active as of: September 2022