Jeffrey A. Carley

5242 Willowbrook Road, Colorado Springs, Colorado 80917
Phone: 719-510-9307 E-mail: jeff@TheCarleys.net

Position Desired

Network Architecture, Network Security, Network Design, Network Support, Network Operations, or Corporate Training utilizing technical skills, abilities, training, and experience in security, design, test and evaluation, implementation, and operation.

Summary

25+ years in the computer networking industry with major strengths in **network security and management, network architecture design and implementation**, **project leadership, test and evaluation**, **operation**, **technical support**, and **training.** Extensive experience in converged IP network environments transporting data (TCP/IP and SNA), Voice (VoIP) and Video broadcast (IP Multicast), with strong requirements for performance, scalability, and availability. Extensive experience in design and development of network security products using IPSec and GRE.

Clearance

Active SECRET clearance.

Skills

Hardware: Cisco - Routers (ASR1000s, 3900s, 3800s, 3600s, 2900s, 2800s, 2600s, 2500s, 7200s, 7500s, GSR 12000s, 4500s), Switches (3850s, 3750s, 6500s, Nexus 7000, Nexus 5000, Nexus 2000, 3020s, 4000s, 5500s), Firewalls (ASA 5500s, PIX), Load Balancers (CSS 11000, Local Directors), VPN (3000), Wireless Access Points (Aironet 1200s, 350s, WLSE), Storage Area Networks (MDS 9500s, 9216s); **HP** – Enclosures (C7000s, C3000s), Interconnect Modules (Virtual Connect Ethernet, Flex 10); **F5** – (BIG-IP 4000, VIPRION 2400); **General Dynamics** – (TACLANE KG-175-A, KG-175-D); **ForeScout** – (4000s/1000s/100s NAC appliances); **Blue Coat** – (ProxySG 900s); **Fortinet** – (Fortigate 1240b firewall); **Infoblox** – (IB1050s, Trinzic 1410s); **Spectacom** – (9289 GPS Clocks); **Nokia** – (Checkpoint firewall); **IBM** – (2210 Nways Multiprotocol Routers, 3705/3725/3745 Front End Processors);

Data/Voice Protocols – IPv4, Transmission Control Protocol (TCP), User Datagram Protocol (UDP), Systems Network Architecture (SNA)/Advanced Peer-to-Peer Networking (APPN) protocols, IP Multicast, Session Initiation Protocol (SIP), Real-time Transport Protocol (RTP), RTP Control Protocol (RTCP), H.323, Connectionless-mode Network Service (CLNS), Internet Protocol Security (IPSec), Generic Routing Encapsulation (GRE), Multiprotocol Label Switching (MPLS), Ethernet over MPLS;

Routing Protocols – Open Shortest Path First (OSPF), MultiProtocol Border Gateway Protocol (MP-BGP), Enhanced Interior Gateway Routing Protocol (EIGRP), Interior Gateway Routing Protocol (IGRP), Routing Information Protocol (RIPv2), Protocol Independent Multicast (PIM);

WAN/LAN/WLAN/SAN Technologies – Frame Relay, Packet-over-SONET (PoS), ISDN, X.25,ATM, PPP, PPPoE, DSL,T1/E1/DS1, DS3, OCxx, Ethernet, Fast Ethernet, Gigabit Ethernet, Ten-Gigabit Ethernet, Token-Ring, FDDI, 802.11 a/b/g, Transparent Bridging, Source Route Bridging (SRB), Reverse Source Route Bridging (RSRB), Data-Link Switching plus (DLSw+), Spanning Tree (STP, RSTP, PVST+), Link Aggregation Groups (PAgP, LACP, LLDP), Virtual Local Area Networks (VLANs), Trunking (ISL, 802.1Q), VLAN Trunking Protocol (VTP), VRF, VRF-Lite, VSS;

Network Security/Availability Products, Protocols, and Regulations – Firewalls, Access Control Lists (Cisco ACLs, Turbo ACLs, VLAN ACLs, Dynamic ACLs, PIX conduits), Intrusion Detection Systems (IDS), Virtual Private Networks (VPNs), IP Security (IPSec), Authentication Systems (TACACS+, RADIUS, PKI, 802.11i w/ EAP, 802.1x), Load Balancing, SSL (F5), Regulations (HIPAA,

FIPS-140-2), and First Hop Redundancy protocols (HSRP, VRRP, GLBP), QoS (DSCP, Tos, LLQ, WRED);

Misc Protocols and Systems – Simple Network Management Protocol (SNMP), RMON, Netflow, Cisco Discovery Protocol (CDP), CiscoWorks, CiscoWorks Blue, Cisco Secure Policy Manager (CSPM), Cisco Secure Intrusion Detection Director (CSIDD), CiscoWorks Wireless LAN Solution Engine (WLSE), HP OpenView, HP NNMi, HP Network Automation (Opsware), Concord Network Health, NetView, NetView AIX, Solarwinds Orion, Cisco Fabric Manager, Cisco Device Manager, NetScout sniffers, Infinistreams, Wireshark, PIX/ASA captures, DNS, Dynamic Host Configuration Protocol (DHCP), Address Resolution Protocol (ARP), Network Address Translation (NAT), Network Time Protocol (NTP), Syslog, Simple Mail Transfer Protocol (SMTP);

Design Methodologies – Cisco Service-Oriented Network Architecture (SONA), Cisco Architecture for Voice, Video, and Integrated Data (AVVID) framework, Cisco hierarchical design model, Enterprise Composition Network Model, and Cisco Security Architecture for Enterprise (SAFE);

Corporate Training and Course Development – Live classroom, Remote learning, Cisco Reusable Learning Object (RLO) methodology, PowerPoint, Visio, and White Papers.

Certifications (some have expired)

Cisco Certified Security Professional (CCSP)	**2003**
Cisco Certified Design Professional (CCDP)	**2004**
Cisco Certified Network Associate (CCNA)	**2000/2014**
Certified Information Systems Security Professional (CISSP)	**2002**
INFOSEC Professional (NSTISSI-4011)	**2003**
INFOSEC Assessment Methodology (IAM)	**2003**
CompTIA Network+	**2004**
CompTIA Security+	**2004/2014**
Cisco Certified Network Professional (CCNP)	**2000**
CCNP SNA/IP Integration Specialist	**2001**
CCNP Voice Access Specialist	**2001**

Experience

TEKsystems, Inc Colorado Springs, CO **October 2014-Current**

NORAD Contract
Network Architect providing technical expertise and leading multiple projects including designs, installations, deployments, and operational acceptance for a HARRIS contract with The North American Aerospace Defense Command (NORAD). Responsibilities include creating and maintaining/updating technical documents (SDP, RDP, SVAT plans, BOMs, diagrams, etc.) and ensuring they are developed to strict output specifications, meet project requirements, and are written to a high level of engineering completeness. Additional responsibilities include generating and coordinating Change Management (change requests, authorized services interruptions, etc.) activities as required and evaluating vendor products and recommending purchases consistent with the organization's short and long-term objectives. Also includes regular interaction with the customer to address ongoing requests for requirements and design changes.

- Implemented a cross-domain control interface facilitating the transfer of mission critical server-to-server traffic between mission partners that includes high-availability with dynamic failover, data loss prevention (DLP), IDS, and DNSSEC capabilities. Drafted briefs critical to obtaining Authority To Connect (ATO) the solution.
- Implemented Blue Coat web proxy with white lists and proxy chaining to provide efficient control of user web access.

- Deployed a Network Access Control (NAC) solution utilizing ForeScout CounterACT appliances in conjunction with 802.1x, PKI certificates, and Windows Active Directory (AD) Organizational Units (OUs) for restricting a user's access within the network.
- Reviewed and updated to meet new requirements a design for extending an enclave to remote sites prior to implementation.

MDA JRDC Contract

Network Architect specializing in IP multicast and WAN connectivity to support the IT Services directorate on the Missile Defense Agency (MDA) Joint National Integration Center Research and Development Contract (JRDC) program based at Schriever AFB, CO. Duties included overseeing the design and architecture of a large mission critical global network with emphasis on multicast and WAN components. Responsible for developing network and multicast standards, reviewing network designs, mentoring network engineers and developing strategic plans for network systems.

- Developed new Remote Site Connectivity Architecture supporting multiple accreditation boundaries at each site and multiple security classification levels. Modeled multiple solutions including use of Virtual Routing Facility (VRF), MPLS BGP VPN over IP (Over The Top – OTT), multipoint GRE (mGRE), Location Identifier Separation Protocol (LISP), Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN), and EIGRP Over the ToP (OTP). The developed architecture was deployed in new sites without issue and is being retrofitted into existing sites. The architecture provides greater flexibility in site deployment with reduced cost.
- Evaluated and modeled extensive global network utilizing numerous LAN and WAN technologies and multiple layers of cryptography and tunneling (TACLANE, IPSec, GRE, VTI) for Maximum Transmission Unit (MTU) incompatibilities and IP packet fragmentation and reassembly issues causing significant packet loss and performance problems. Authored a white paper detailing the results and identifying network wide configuration standards to mediate the issues. Implementation of the recommendations eliminated the packet loss issues and significantly improved the performance of the applications and networking devices.
- Improved and stabilized existing multicast network tying numerous MDA enclaves and global data sources/sinks used for extensive modeling and simulation exercises as well as for VoIP conferencing. Developed Multicast Roadmap detailing a 1-3 year plan for improvements for the Multicast service.

Hewlett Packard Colorado Springs, CO **April 2009-October 2014**

Technical Team Lead for a team of seven full time employees and three contract employees. Responsible for oversight of all network aspects of one of HP's largest accounts with installations in three HP data centers. In addition to team leadership responsibilities:

- Produce high level network designs for next evolution of multiple data centers that will support a full 10 Gigabit environment for the account. Cisco Nexus and HPN A-Series solutions were developed and priced.
- Develop and lead implementation of a **data center network infrastructure design** for a new data center to replace an existing data center. Design needed to support little or no downtime for applications.
- Lead networking team **migration from old data center to new data center** of networking systems such as firewalls, load balancers, DNS, NTP clocks, and Monitoring systems as well as coordinating networking support for server moves.
- Design and implement upgrade of **Heartbeat Switches**. The heartbeat switches are some of the most critical and sensitive switches in the environment and the upgrade was accomplished with minimal or no impact to the systems and applications.
- Redesign and assist with implementation of **Dev/Test and Disaster Recovery** Data Center network infrastructure. A primary objective of this redesign was to allow the Dev/Test data center infrastructure to closely resemble the production data centers infrastructure.
- Lead implementation of a **PCI segmentation project** to isolate PCI systems from non-PCI systems using Cisco ASA 5500 firewalls.

- Migration of **DNS** from a combination of VMS BIND and Windows AS DNS servers to an Infoblox solution.
- Design **10G Access layer** to support connectivity from HP C7000 Blade enclosures. Implement 10G access for heartbeat traffic.
- Design a **dedicated backup network** and implement phase I of the migration to this new network.
- Redesign **switch management** and **Lights Out** network connectivity moving it from being in-band to using a support network.
- Develop network portion of an ITIL Capacity Management component for the account.

Modis – Contract to HP Colorado Springs, CO **March 2008-February 2009**

Provided technical leadership and networking support for a variety of projects as well as day-to-day operational support for network as needed including problem determination and opening new connectivity through Cisco PIX firewalls and Cisco 5500 ASAs. Some of the projects included:

- Lead **layer 2 upgrade** to a high availability data center environment with minimal disruption or risk including conversion from CAT OS to IOS, upgrading from SUP 1A supervisor engines to SUP 32 supervisor engines, upgrading memory on SUP 32 engines, standardizing IOS spanning-tree and other parameters, aligning layer 3 HSRP primary interface locations and layer 2 root bridge locations, and consolidating switches.
- Lead **Cisco 4006 retirement** – Retiring several Cisco 4006 switches by consolidating servers to recently upgraded Cisco 6509 IOS switches.
- Take over networking aspects of **setting up isolated production training environment** utilizing Cisco 3750-E stack switches, Cisco CSS load balancers, F5 load balancers, and Cisco 3020 blade switches in HP C7000 enclosures.
- Provide network support for the **relocation of Development/Test environment** for account to a different Data Canter.
- Set up dedicated **Data Replication network** for the replication and refreshing of SAN data over dedicated OC3s using Cisco 3750 switches and Cisco 7204 VXR routers.
- Lead design and implementation of **HP Virtual Connect Modules** for network connectivity from HP C7000 enclosures to the data network.
- Provide network support for **Disaster Recovery** exercises.
- Enable use of SpectraCom 9289 GPS clocks as reference clocks for the core network routers and enable network routers to act as the time source for the rest of the network.

Consulting - Engedi Technologies, Inc. Colorado Springs, CO **2005-2011**

Continued support of projects begun while employed as Chief Technology Officer by Engedi Technologies, Inc. from 2002-2005 including ongoing technology development, evaluating extending current network security product line to utilize IPSec GRE tunnels over GPRS, GSM, CDMA, and 802.11 a/b/g for redundant network management connectivity, patent prosecution, relationship development, and publicity for network security solutions for both the government and commercial environments.

Janus Capital Group Denver, CO **January 2005-February 2006**

Senior Network Engineer

Lead and advised in providing a reliable, efficient, and secure network in a global 7x24X365 environment through the analysis of best practices, review and acceptance of design and engineering,

and through management of networking hardware, networking software, and implementing proactive actions and monitoring. This includes identifying, designing, implementing, and supporting networking and firewall technologies to help achieve business objectives with little managerial direction. Solve complex network problems, review, identify, and resolve design issues, and provide proactive identification and resolution of potential issues. Identify and mitigate risks posed by single points of failure in the network. Provide regular testing of redundancies and failovers on the Network.

Responsible for the day-to-day operation and management of the production network. Support routers and switches (Cisco 6500s, 7200s, 5500s, 4500s, 4000s, 2900s, 3600s, 2600s, 2500s), firewalls (Nokia/Checkpoint, Cisco PIX), VPNs (Cisco 3000s, site-to-site PIX, site-to-site Checkpoint, site-to-site PIX-to-Checkpoint), Wireless Access Points (Cisco Aironet 1200s, 350s, WLSE), F5 BigIPs, Cisco Load Balancers (Local Directors), and Storage Area Networks (SANs - Cisco 9500s, 9216s). Provide training to operational and support personnel on the Cisco director class SAN switches. Implement IP Multicast Video for all employee meetings.

Engedi Technologies, Inc. Richmond, VA **2002-2005**

Chief Technology Officer

Architected and oversaw the development of network security solutions for both the government and commercial environments. Primary areas of responsibility included intellectual property, product development, technical aspects of customer, vendor, partner, and funding relationship development, and assisted with corporate publicity.

Intellectual Property - Developed intellectual property for securing remote network management traffic. Developed intellectual property and protocols for protecting computer resources using multi-party authorization (in part supported by a grant from the Commonwealth Technology Research Fund of Virginia in conjunction with James Madison University). Developed plans for patent prosecution, trade secret protection, and trademark identification and protection. Nine US patents issued.

Product Development - Identified solution requirements, designed solution, developed prototype specifications, developed prototype test plan, tested prototype, oversaw third party testing of prototype, demonstrated prototype to potential customers and partners, developed hardware and software specifications for production appliance solution, oversaw and assisted with appliance development, developed appliance system test plan, developed demonstration lab design, developed Beta customer environment requirements and sample test plan, oversaw preparation of appliance for FIPS-140-2 evaluation. Primary product provided for secure management of network devices at remote locations by building secure IPSec GRE tunnels to a network operations center for the “normal” in-band management traffic and failing the IPSec GRE tunnels over to an out-of-band network to provide secure access to ALL network management services even during a network failure.

Relationship Development/Publicity - Authored white papers providing tutorials on current network management technologies, identifying vulnerabilities in the existing technologies, and highlighting the benefits of the solution developed by Engedi Technologies. Developed and presented technical and marketing PowerPoint presentations on Engedi’s solutions for potential Customers, Partners, Vendors, Venture Capitalists, Angel Investors, and Investment Clubs. Interfaced with Universities evaluating solutions. Provided network security subject matter expertise for Talk Radio programs. Provided interviews for Trade Publications as a Network Security expert. Authored opinion piece for Insight on the News magazine.

Independent Instructor Colorado Springs, CO **2004-2005**

CISSP Exam Preparation Training – Introduced and facilitated licensing agreement negotiations between training provider and course curriculum provider. Adapted curriculum for use in full-time one week class rather than 56 hours of evening classes. Provided Instructor services for classes on a contract basis.

Security+ Exam Preparation Training – Headed the Colorado Springs chapter of the Information Systems Security Association (ISSA) project to provide quarterly one day intensive exam preparation

seminars for the Security+ exam customized to the needs of the students. Evaluating CompTIA authorized curriculum options for use in starting a one week Security+ exam preparation class.

MCI/WorldCom Clinton, MS **1997-2002**
Senior Engineer (Network Analysis and Validation) Colorado Springs, CO 1998-2002

Network Security - Developed and evaluated network security designs and architectures. Designed and implemented a network security test bed for product level security evaluation, security design prototyping and analysis, and penetration testing. Tested Catalyst 6000 Intrusion Detection System (IDS) modules as well as recreated system vulnerabilities and verify fixes.

SNA over IP - Developed and evaluated SNA design and architecture changes and enhancements. Designed and implemented a distributed SNA test bed including VTAM partitions channel attached to Cisco 7500 routers with Channel Interface Processor (CIP) cards and Cisco 4500M routers running the DLSw+ feature set at remote data centers, and local lab equipment including Cisco 4500M routers running DLSw+, Cisco 7200VXR routers running the APPN feature set, and LU emulation test equipment. Led and participated in numerous migration projects for SNA over IP including the migration to the use of Gigabit Ethernet Interface Cards on the mainframes. Developed and provided training for new SNA related features being implemented in the production network to support personnel including hands on training in a lab environment. Evaluated Quality of Service (QOS) strategy for transporting VoIP and SNA traffic without conflict over the IP backbone.

Network Management - Evaluated and validated Network Management and Monitoring systems. Provided hands on training for managing and monitoring new devices before implementation in production environment. Evaluated various methods of gathering operational information from network devices including SNMP polling, RMON, Netflow, RADIUS, CGMA, and XML.

Pre-sales/Post-sales - Provided SNA pre-sales and post-sales technical support for RFP responses with SNA over IP solutions, proto-typed proposed customer solutions in lab, provided customized testing to answer specific customer questions, and participated in customer presentations.

General Testing and Validation – Regularly tested new hardware and software components before allowing implementation into the production network, including Cisco IOS, for defect identification, performance, reliability, ease of management, and security in a large enterprise network. Reproduced production problems in lab environment for problem isolation and validation of solutions. Provided recommendations for implementation and maintenance of network equipment. Evaluated options for partitioning very large OSPF network including the possible use of MPLS, iBGP, or IS-IS.

Account Engineer (Managed Services) Cary, NC 1997-1998

Account Engineer - Provided customer technical interface for a select set of customers including design review, site survey, circuit installation, router/switch turn-up, equipment monitoring, problem determination and resolution, life-cycle management, disaster recovery, and customer satisfaction. Responsibilities included coordinating with and being the primary point of contact for the customers, design engineers, implementation engineers, the operational monitoring control center, life-cycle engineers, circuit providers, and equipment vendors. Primary service was management of routers terminating MCI frame relay and ATM circuits.

Customer Pilot - Defined management tools to be used, procedures to be followed, training required, and information to be monitored for a Systems Network Architecture (SNA) over Internet Protocol (IP) product offering and implemented the procedures in a customer pilot network.

CTG Corporation Raleigh, NC **1996-1997**

Contract Test Engineer to IBM Networking Systems Division
Developed and executed product level and system level test plans for IBM's NWAYS Multiprotocol Routers specializing in testing the APPN features of the router code under development as well as providing general testing support for the full range of router features.

IBM Corporation Armonk, NY **1984-1994**

Staff Programmer RTP/Raleigh, NC 1990-1994

Designed, supervised, and provided technical editing for projects that produced "Red Books" used to distribute information about new products to field personnel and customers.

Provided third level product support to IBM World Trade.

Developed and taught workshops to field personnel which reduced the number of support questions on covered topics. Developed and delivered trade show and conference presentations.

Staff Instructor Thornwood, NY 1988-1990

Developed and taught APPC and APPN corporate education classes. Taught Subarea SNA, TCP/IP, OSI, X.25, and corporate leadership classes for IBM personnel worldwide.

Associate Programmer/ Sr. Associate Programmer RTP, NC 1984-1988

Developed and coordinated the development of protocol and architectural standards for computer networking. Designed and developed protocol and reference model code for the Intermediate Session Routing components of Advanced Peer-to-Peer Networking (APPN).

Organizations

- IEEE
- IEEE Computer Society
- Center for Internet Security (CIS)
- Information Systems Security Association (ISSA)
- Cisco Users Groups (Colorado Springs, Colorado and Denver, Colorado)

Education

B.S. Computer and Information Sciences **1984**
Georgia Institute of Technology, Atlanta, GA