D. Brent Chapman

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Summary

Extensive **IT management** and **consulting** experience for hundreds of organizations worldwide
- Extensive experience establishing, scaling, and managing **IT infrastructure** for **startups**
- **International reputation** as industry expert, author, speaker, consultant, and educator
- Developed and taught **Incident Management at Google (IMAG)** process, by adapting the Incident Command System (ICS) for use throughout Google in managing outages and other emergencies.
- **2004 SAGE Outstanding Achievement Award:** annual recognition award from the leading professional association for system administrators to "someone whose professional contributions to the system administration community over a number of years merit special recognition"
- Coauthor of **Building Internet Firewalls** book (published by O'Reilly, 2000), which many experts consider a canonical reference on the topic, and which has been translated into 10 languages
- Creator of **Netomata Config Generator (NCG)**, an open source software package which creates complete, ready-to-install config files for network devices and services
- Creator of **Majordomo** mailing list software, used by hundreds of thousands of sites worldwide

Management Expertise

- Entrepreneurial ventures
- Department management
- Staffing and personnel
- Financial management
- Operations, DevOps, SRE
- Project management
- Vendor management
- Facilities management
- Incident management
- International management
- Consulting
- Training

Technical Expertise

- **Very large, complex, international networks**
  - **Infrastructure** architecture, analysis, evaluation, design, implementation, and automation for scalability, cost effectiveness, reliability, and ease of operation and maintenance
  - **Network** architecture, analysis, evaluation, design, implementation, operation, and management
  - **Security** architecture, analysis, evaluation, design, implementation, operation, and management
- **System and network administration** of multi-site, multi-OS networks

Technical Knowledge

- **Network routers and switches** including Juniper, Cisco, Extreme, Ascend, Redback
- **Network security systems** including firewalls (Cisco PIX, NetScreen, etc.), IDS (Snort, etc.)
- **Network analysis & management tools** including packet sniffers, event/usage monitoring systems
- **Network appliances** including load balancers, VPN concentrators, storage
- **Wireless networking** including Ubiquiti
- **Operating systems** including UNIX (especially Linux, SunOS, Irix, and *BSD), Mac OS, Windows
- **Virtualization and cloud platforms** including Amazon Web Services (AWS) EC2 and S3, and Xen
- **Automation systems** including Puppet and Netomata Config Generator (NCG)
- **Phone systems** including PBXs, PABXs, 3com NBX, NorTel, telco services and networks
- **Protocols** including IP, IPv6, TCP, UDP, ICMP, Ethernet, 802.11 (WiFi), MPLS, ATM, FR, DSL, HTTP, HTTPS, DNS, SSH, VoIP, SIP, RTP, SNMP, GRE, VPN, IPsec, BGP, EIGRP, OSPF, VRRP
- **Languages** including Python, Ruby, Perl, C, UNIX "little languages" (such as csh, sh, awk, sed, etc.)
- **Programming tools** including revision control systems (Git, Subversion, etc.), Make, Rake, etc.
- **Databases** including MySQL, Sybase, Oracle, INGRES, FileMaker Pro

Educational History

- **Master of Business Administration** (with a focus on innovation and entrepreneurship), **Melbourne Business School (Australia)**, 2003.
  - Dean's List, for outstanding academic achievement (top 10% of the graduating class)
  - Led the Judging Team for the 2002 Melbourne University Entrepreneurs' Challenge, which is the premier business plan competition in Australia
- **Bachelor of Science in Electrical Engineering and Computer Science** (with a focus on Computer Science), **University of California, Berkeley**, 1989

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Open Source Software Releases

- **Netomata Config Generator (NCG)**, an open source software package which creates complete, ready-to-install config files for network devices and services (first released in April 2009)
- **Majordomo** mailing list management software package; open source, used by hundreds of thousands of sites worldwide (first released in October 1992)

Professional Activities

- Member of **LOPSA**, **USENIX**, **SAGE**, **SVASE**, **BayLISA**, **ACM**, and **IEEE**
- **Open source software developer** of packages such as **Netomata Config Generator (NCG)** and **Majordomo** (described above, under "Open Source Software Releases")
- **Network-Automation**, **Firewalls**, and **List-Managers** mailing lists founder and contributor

Publications

Books

- **Building Internet Firewalls, Second Edition**, 894 pages, coauthored with Elizabeth D. Zwicky and Simon Cooper, published by O'Reilly & Associates, June 2000; translated into 4 languages
- **Building Internet Firewalls**, 517 pages, coauthored with Elizabeth D. Zwicky, published by O'Reilly & Associates, September 1995; translated into 8 languages

Papers

- **Majordomo: How I Manage 17 Mailing Lists Without Answering '-request' Mail** paper, USENIX LISA Conference (1992)
- **Network (In)Security Through Packet Filtering** paper, USENIX UNIX Security Symposium (1992)
- **RAPID: Remote Automated Patch Installation Database** paper, with Russell Brand, USENIX Software Management Workshop (1989)
- Numerous articles and interviews in trade publications, and talks at industry meetings and events

Seminars and Talks

- **Incident Management at Google (IMAG)**, 2-hour introduction to incident management principles and practices within Google, delivered dozens of times to hundreds of employees throughout the company (2012-2016)
- **Automating Network Configuration and Management Tutorial**, full-day seminar presented at USENIX LISA Conferences (2009-2010)
- **Automating Network Configuration**, invited talk given at NANOG 49 (2010); user group meetings including BayLISA and SASAG (2010); and internal corporate forums including **eBay** and **Ericsson**
- **Building Internet Firewalls Tutorial**, full-day seminar presented hundreds of times at conferences and client sites worldwide (1993-1998)
- **Incident Command for IT: What We Can Learn from the Fire Department**, invited talk at O'Reilly Velocity Web Performance and Operations Conference (2008) and USENIX LISA Conference (2005)
- **Zero to LISA in a Year**, invited talk at USENIX LISA Conference (1998) and BayLISA
- **Preparing for Disaster Tutorial**, half-day seminar, USENIX Technical Conference (1992)

Personal Information

- Black Rock City Emergency Services Department **911 dispatch supervisor** for Burning Man (an annual arts and music festival held in the Nevada desert, which draws about 70,000 participants).
- Mountain View Office of Emergency Services **volunteer instructor**; named **Volunteer of the Year in 2004** for helping teach Community Emergency Response Team (CERT) classes.
- Alameda Fire Department Community Emergency Response Team (CERT) **volunteer member.**
- Licensed technician-class **amateur radio operator** (KG6TKS).
- Licensed instrument-rated private **pilot**.
- Former **Civil Air Patrol** emergency services **incident commander** (one of only about 30 fully-qualified in state of California at the time), air and ground operations director; awarded **Distinguished Service Medal** (highest award given for other than valor) in 1997 for getting CAP onto the Internet.

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Professional History

Throughout my career, I have alternated between periods when I was a regular full-time employee of a single company (such as Google, Netomata, Tellme, Covad, or Xerox PARC), and periods when I was consulting for dozens of clients worldwide through my consulting firm, Great Circle Associates, Inc. When I work full-time as a regular employee of a particular company, Great Circle is largely idle.

Great Circle Associates, Inc.   3/1989 – present
(Mountain View, San Francisco, and Alameda, CA)

Great Circle Associates, Inc., is my consulting firm, through which I do business when I'm not otherwise engaged in a full-time/permanent position such as with Netomata, Tellme, or Covad. Selected major consulting engagements are listed separately, below.

Owner and Business Manager
- Managed all aspects of a thriving international consulting and training business, including employees, accounting, taxes, publicity, marketing, sales, collections, and operations.

Consultant/Manager/Educator
- Provided IT consulting, management, and training services for organizations worldwide, including
    - **Startups** (e.g., Splunk, Rearden, Kontiki)
    - **High-tech firms** (e.g., SGI, Seagate, Intel, 3COM, Applied Materials)
    - **Network operators** (e.g., UUNET, JANET, BBN Planet, Pacific Telesis)
    - **Retailers** (e.g., Ross Stores, Gap Inc.)
    - **Universities** (e.g., Ohio State University, Penn State University)
    - **International organizations** (e.g., TÜV, UNFAO, UKERNA)
    - **Government agencies** (e.g., State of Wisconsin, Naval Surface Warfare Center)
    - **Financial and legal firms** (e.g., Charles Schwab, Irell & Manella, Davis Polk & Wardwell, CCH)
    - **Fortune 500 firms** (e.g., Rockwell Collins, Unisys, Honeywell, Shell, Lockheed, Chicago Tribune)
- Services provided included
    - **IT infrastructure** architecture, analysis, evaluation, design, and implementation for scalability, cost effectiveness, reliability, and ease of operation and maintenance
    - **Network** architecture, analysis, evaluation, design, implementation, operation, and management
    - **Security and firewall** architecture, analysis, evaluation, design, implementation, operation, and management
    - **System and network administration** of multi-site, multi-OS networks of 1,000+ hosts
    - **Department management**, including department creation, reorganization, and expansion
    - **Staffing**, including planning, creating job descriptions, recruiting, interviewing, and hiring
    - **Personnel management**, including supervision, evaluation, motivation, and mentorship
    - **Financial management**, including budgeting, forecasting, purchasing, and asset control
    - **Project management**, for projects involving tens of people and millions of dollars in funding
    - **Vendor management**, including identification, RFP creation and evaluation, selection, negotiation, and relationship management
    - **Facilities management** for both offices and data centers, including planning and management of space allocation, HVAC, electrical, voice and data, as well as move planning and management
    - **International management**, including familiarity with various international business cultures and a sensitivity to cross-cultural issues
    - **Merger & acquisition management**, including evaluation of overlaps and integration of teams
    - **Patent consulting**, including evaluation of claims, and location and documentation of prior art
    - **Incident management**, for critical and complex multi-party security and availability incidents
    - **Product management**, including analysis of proposed and competing offerings
    - **Custom software development** to support various tasks and projects
    - **Consulting**, including proposal creation and RFP response, project design and management, meeting facilitation and leadership, and customer relations
    - **Training**, including course design, creation, presentation, and evaluation; course developer and instructor recruiting, management, and evaluation

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Black Rock City LLC (San Francisco, CA)   8/2010 – present

Full-time/seasonal positions. Company produces the annual Burning Man event, an arts and music festival which draws approximately 70,000 participants, building a temporary city named Black Rock City that springs forth for just one month each on a dry lakebed in the remote Nevada wilderness.

Dispatch Supervisor, Emergency Services Department
- Dispatch Supervisor for the Emergency Services Department at the annual Burning Man festival.
- Train and supervise on-shift teams of 3-6 dispatchers, managing the minute-by-minute dispatching for an emergency services department consisting of hundreds of personnel and over 40 dispatchable units (fire engines, ambulances, etc.), spread across 7 stations and a dozen radio channels, which provides emergency fire, medical, mental health, and radio services for Black Rock City.

Network Architect/Engineer, Technology Department
- Member of the team that designs, deploys, and manages the on-site wireless network for the annual Burning Man festival.
- Network connects over 50 departments (everything from Accounting to Emergency Services to Heavy Equipment to Rangers) plus over 100 theme camps and art projects to each other, and to the Internet, using a mixture of Juniper routers and Ubiquiti wifi gear.
- Particular focus on automating the configuration of the various devices and services (SNMP monitoring, DHCP, etc.) that make up the network.

Google Inc. (Mountain View, CA)   1/2011 – 9/2016

Full-time/permanent position as a Staff Site Reliability Engineer/Systems Engineer (SRE-SE)

SRE Manager, Google Fiber Site Reliability Engineering (SRE) Team
- Lead and grow the SRE team for Google Fiber, Google's gigabit "fiber to the home" service.
- Design, develop, deploy, and support platforms for Google Fiber network management systems (NMS), operations support systems (OSS), and business support systems (BSS).
- Analyze the structure, responsibilities, and practices of the existing team, which was not performing at its full potential. Devise and implement strategies to improve team performance, including renegotiating and redefining team responsibilities, restructuring the team, managing the departure of several team members, recruiting and developing new team members, and leading the team in developing, documenting, and following improved processes and habits.

Developer and instructor, Incident Management at Google (IMAG) Program
- Improve Google's internal incident management capabilities by adapting the public safety world's Incident Command System (ICS) for use in managing service outages, software failures, and other emergency situations.
- Develop and evangelize the IMAG concept; adapt ICS principles and procedures to Google's needs; develop training material; deliver training to hundreds of SRE, NetOps, and other Google personnel at sites worldwide, both in person and by videoconference; serve as a company-wide subject matter expert in incident management procedures.

Site Reliability Engineer (SRE), Bandwidth SRE Team
- Develop, support, and operate the tools for automating and managing Google's core IP networks, including deployment and management of the massive OpenFlow-based software defined network (SDN) named "B4" that Google first revealed in 2012.

Site Reliability Engineer (SRE), Network Tools Team
- Develop, support, and operate the tools for automating and managing Google's core IP networks, including deployment and management of tools to monitor network availability and performance, manage IP address allocation, and manage network device configuration.

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Netomata, Inc. (Alameda, CA) 8/2008 – 11/2010

Full-time/permanent position. Company eventually merged with Great Circle Associates, Inc.

Founder and CEO
- Established and managed a technology-focused consulting practice based on open source development of a software package (the Netomata Config Generator) which makes networks more reliable and flexible by generating complete, ready-to-install configuration files for network devices and services.

Network Automation Software Developer
- Designed, implemented, documented, tested, and released Netomata Config Generator (NCG) open source software (written in Ruby).

Network Automation Consultant
- Worked with **Netflix** to develop and deploy NCG-based system to automate config generation for WAN/VPN routers at Netflix's several dozen postal processing sites throughout the USA, thereby making their network more consistent, more reliable, and easier to troubleshoot. Coordinated development, testing, and deployment with network architecture team and NOC.
- Developed, deployed, and managed NCG-based system to automate config generation for complex LAN at **Internet Engineering Task Force (IETF)** meeting in Stockholm, Sweden. System generated configs for all network devices (Juniper routers, over a dozen Cisco switches, and several dozen Cisco Aironet wireless access points), plus SNMP-based monitoring and DNS servers. Entire network was deployed and configured in just 2 days.

Network Operations Consultant
- Worked with **Heroku** (a San Francisco startup that is a cloud platform service provider who hosts tens of thousands of Ruby on Rails applications) to strengthen their network operations practices by introducing and training them in methods such as root cause analysis and the Incident Command System (ICS).

Technical Marketing Consultant
- Worked with **Nicira Networks** (a Silicon Valley startup that is developing cloud network infrastructure software) to develop and refine their product definition, understand and document their key launch customer's use case, rewrite and refine a product positioning white paper, and develop technical marketing graphics and presentations.

Radio Response (Waveland and Bay St. Louis, MS) 9/2005 – 10/2005

Volunteer engagement through Great Circle Associates, Inc.

Volunteer Network Architect/Engineer
Hurricane Katrina Disaster Relief Effort
- On-scene network architect/engineer in the aftermath of Hurricane Katrina, helping design, deploy, and operate a free public wireless wide area network in the area of rural Mississippi where the eye of Hurricane Katrina came ashore, approximately 50 miles east of New Orleans.

Tellme Networks, Inc. (Mountain View, CA) 11/2003 – 1/2005

Full-time/permanent position

Senior Manager, Network Operations
Senior Manager, Network Architecture
- Key technical manager for a profitable pre-IPO Silicon Valley startup which develops and operates automated systems to process over 1 billion phone calls per year for Fortune 500 customers as the company grew from 180 to 270 employees.
- Managed the Networking Team, which was responsible for architecture, design, deployment, and maintenance of Tellme's production network, which consisted of approximately 2,000 UNIX servers spread across 6 sites, with connections to 5 ISPs, multiple data and voice carriers, and dozens of Fortune 500 customers. Networking Team managed all routers, switches, VPN concentrators, load balancers, and other assorted networking equipment, as well as corporate LAN at HQ.
- Helped build Networking Team from 5 to 15 people in first year. Developed staffing plan and job descriptions. Identified, interviewed, recruited, and hired team members and contractors.

- Transformed Networking Team, from being demoralized and perceived by rest of company as a bottleneck, into a motivated and respected contributor to the company's success. Transformed 2 marginal performers into productive members of the team; managed 1 marginal performer through an attempted performance improvement plan and then out of the company.
- Managed Networking Team through various management chain changes including arrival of a new Vice President and new Senior Director; worked to maintain morale and focus within the team, and to bring new management up to speed on the team's activities and issues.
- Managed Networking Team smoothly through split into separate Network Architecture and Network Engineering teams; continued to manage Network Architecture team after split, and worked closely with Network Engineering team manager and new director to manage overall Networking group.
- Developed network architecture framework; both supervised and worked directly on major network architecture and deployment initiatives including several new datacenters, new WAN between all datacenters, and new customer connectivity mechanisms.
- Evangelized automated network management as a strategy for increasing network reliability and capability by making network more consistent, speeding configuration changes, and reducing human error. Drove company to adopt a network automation strategy, developed network automation roadmap, hired and managed in-house network automation software developer, identified and developed relationship with key automation software platform vendor.

Kontiki, Inc. (Mountain View, CA) 2/2001 – 6/2001

Consulting engagement through Great Circle Associates, Inc.

Acting Director of Information Technology

- Established Information Technology department for a fast-growing Silicon Valley startup, as it grew from 20 to 50 employees in 2 offices over a 5-month period.
- Managed the growing department while the permanent Director of Information Technology was identified, recruited, and hired. Gracefully and efficiently transitioned the department to the permanent Director of Information Technology.

Network Architecture Consultant

- Worked with Engineering and Product Management to help define, design, and refine the company's innovative content delivery service.

Covad Communications Company (Santa Clara, CA) 11/1997 – 2/2000

Full-time/permanent position. Key technical manager, in various capacities, as the company grew in little over two years from a 40-person pre-IPO startup, through IPO, to a 2000-person public company with a $7 billion market capitalization.

Director of Network Architecture (11/1997 – 10/1998)

- Responsible for initial design of Covad's ATM networks to service DSL subscribers. Identified and evaluated hardware and service vendors. Created tools and procedures for regional network design. Drove initial implementation of Covad's first non-local service network. Participated in product definition and design.
- Helped define and recruit Covad's Network Engineering and Information Technology (IT) teams.

Acting Director of IT Infrastructure (11/1997 – 9/1999)

- Managed an 8-person IT team (UNIX system administrators, NT system administrators, network administrator, and telecom department).
- Stabilized Covad's IT environment and staffing; improved IT staff morale and effectiveness.
- Improved reliability, performance, and scalability of key corporate computer systems.
- Managed all IT activities for Covad's move into its new headquarters, including planning move to minimize both risk and disruption; design and implementation of new LANs, WANs, phone system, and data center; vendor and contractor management; and execution of move.
- Designed, implemented, and managed much of Covad's early IT infrastructure, including corporate LAN and WAN, Internet connection and firewall, public web server, mail server, dialup server, intranet web server, file servers, print server, monitoring systems, trouble ticketing systems, etc.
- Recruited permanent director for IT Infrastructure group, and smoothly transferred responsibilities.

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Director of Technical Marketing (10/1998 – 2/2000)
- Evangelized Covad's tremendous technical capabilities to both internal and external audiences, and help continue to develop and extend those capabilities. Positioned Covad as a technical leader. Developed compelling demonstrations and programs to highlight Covad's unique technical capabilities. Helped Covad's partners and customers understand Covad's technical capabilities. Helped Covad understand the technical needs and capabilities of its partners and customers.
- Helped set and communicate Covad's future directions. Participated in product and service definition and refinement. Provided technical input on and support for all Marketing, Sales, and Business Development activities.
- Designed and implemented programs to support and develop Covad's System Engineers.

Silicon Graphics, Inc. (Mountain View, CA)   3/1996 – 9/1997
Consulting engagement through Great Circle Associates, Inc.

Cray Merger Team Member
- Key member of the team that designed, coordinated, and implemented the worldwide networking aspects of the merger of Silicon Graphics (SGI) and Cray Research.
- Developed innovative mechanisms to effectively and securely link the Silicon Graphics and Cray networks, despite their drastically different operational and security models.

Interim Internet Architect
- Worked as a key corporate resource for issues related to Internet connectivity, firewalls, electronic mail, domain name service, and so forth.

Corporate Network Architecture Team Member
- Helped develop a plan to handle the projected growth of SGI's network over 3-5 years, including developing project outlines, personnel requirements, budgets, timelines, and project dependencies for the 55 projects that make up the plan.

Telebit Corporation (Sunnyvale, CA)   2/1991 – 12/1991
Consulting engagement through Great Circle Associates, Inc.

Sun Network Specialist
- Analyzed, reconfigured, stabilized, and expanded Telebit's internal TCP/IP network.

Ascent Logic Corporation (San Jose, CA)   8/1990 – 4/1991
Full-time/permanent position

Computer Operations Manager
- Managed all computer operations for a software development company.

Xerox Palo Alto Research Center (PARC)   11/1989 – 8/1990
Full-time/permanent position

UNIX Operations Manager
- Planned and implemented software and procedures to address short-, medium-, and long-term problems for the 250+ Sun workstations, servers, associated networks, and other equipment at one of the world's leading industrial research facilities.

Capital Market Technology, Inc. (Berkeley, CA)   3/1985 – 10/1989
Full-time/permanent position

Computer Operations Manager
- Managed all computer operations for a leading-edge financial services company.

Programmer/Analyst
- Responsible for the design, implementation, and maintenance of software systems for advanced financial engineering, evaluation and selection of microcomputer hardware, software, and supplies, and operational control and administration of CMT's microcomputers.