Synopsis	• Over **30 years** of professional experience in most aspects of Information Technology, in a wide range of industries and disciplines; specializing in IT Security and Audit for the last **20 years**; • **CISSP, CISA and CPTE/CPTC (pen-test) certified**; Member Vancouver Security SIG (past chair), ISACA, PolCyb and OWASP (past chair, Vancouver Chapter); • Enhanced Security Clearance (Canadian Federal Government via RCMP); • Expertise in I.T. Security, including: Security architecture design and implementation; **pen-testing (ethical hacking) and** vulnerability assessments, **incl. applications**; Threat/Risk Assessments; Compliance and Privacy, incl. PCI DSS; Firewalls; Intrusion Detection/Prevention (IDS/IPS); UNIX and Windows; various security tools; **Wireless audit and survey**; Identity Management; training, incl. course development; • Extensive experience with **Windows and UNIX** Operating Systems; exposure to mainframe systems; • Broad knowledge of communications systems and Local and Wide Area networking, including wireless; • Solid background in relational databases: **Microsoft SQL-Server, Oracle**, Informix, Sybase, MySQL, DB2;
Work History	***July 1998 – present, Principal Consultant, WaveFront Consulting Group (WCG)*** *(The WCG joined the Procyon Security Group partnership in January 2012)* • Web application security and network penetration testing for BC statutory organization (2015-ongoing); • Review of IT security controls for the **Public Employees Benefits Agency (PEBA), Ministry of Finance, Government of Saskatchewan**; ad hoc security consulting (ongoing); • External penetration test (network, 50+ applications, wireless networks, social engineering, Denial of Service) for large local municipal government (2014-2015); • Security architecture design, threat modeling and **security testing of web applications; security assessments, pen-tests and incident response (Top Producer Systems / Move Inc.)** (2005-12); • **Security consulting for the BC Liquor Distribution Branch (LDB) – Penetration Testing and Vulnerability Assessments (PCI and non-PCI) on as needed basis (starting December 2015);** Assistance with PCI DSS efforts, incl. threat modeling and penetration testing; firewall and router audits; security assessments of Special Occasion Licenses Online (SOLO), Oracle Financials, Vendor Facing Web, Liquor Inspection Support, Wholesale Order Management, Store Ops and other systems; wireless security assessment & remediation; secure Linux and Windows server deployment; assistance with Identity Management strategy; Security review for IDS deployment; architect and deployment of secure remote access facilities (2001-2011, 2014-ongoing); • **Penetration testing** for PCI DSS compliance for BC Transit (2012-2013) and Pacific Blue Cross (2015). Latter included thick client and mobile (smart phone) applications; • **Web Application Security Assessments, Training, Architecture Design & Security Consulting** for IAP Life; BC Ministries of Health, Social Services, Finance and Citizen Services; WPS-Disaster Recovery; Pro-Training (now Yardstick); Best Buy / Future Shop; Simon Fraser University; BC College of Registered Nurses; BC Campus; Pacific Blue Cross; H.Y. Louie (IGA); BC/Yukon Panorama public health project; Provincial Health Services Authority (PHSA), etc.(2000-now); • **Security Reviews, Vulnerability Assessments & Penetration Tests (incl. wireless)** for the BC Medical Association (BCMA), Yukon Govt. & College, nZone Media, Mark Anthony, Ministry of Citizens Services, Workers Compensation Board (AB), various municipalities & forestry companies, etc. (1998-now); • Assistance with **PCI DSS compliance** for several organizations, incl. Vancouver Aquarium (2010-12); • **Threat-Risk Assessments (STRAs), consulting** - BC Health Authorities, Ministry of Health (2008-12); • **Security Architecture Design, Penetration Testing and Security Reviews for Citadel Commerce (Internet Payment Gateway) –** Reviewed security issues and developed a prioritized security plan to address gaps; Provided guidance on security controls and policy development; worked on bank clearing-house systems and cryptographic processes (Canada/US); wireless networks; legal and services provider compliance requirements (Visa, MasterCard, STAR, NACHA, PCI, FSA); disaster recovery/ business continuity planning(BCP/DRP); application and network penetration testing (2004-08);

Work History (cont.)	• **Information Security Coordinator** at **Emergency Communications for South-Western BC (E-Comm)** – assistance with security requirements, including network security architecture, policy design and reviews, Threat/Risk Assessments, mobile and wireless security, IDS deployment, Disaster Recovery/ Business Continuity, VPN's, **application security assessments,** two-factor authentication, encryption and remote access, password and user management; liaison with Vancouver, Victoria and other police departments, RCMP, BC Ambulance Services, Public Safety and Law Enforcement agencies (2000-6); STRA (2013);
	• **Security Assessment for Stockgroup Systems** – Reviewed IT security issues, developed plan for the remediation of high risk findings (2007); similar process for the **Comox Valley Airport Authority** (2011);
	• **BC Ministry of Human Resources (MHR)** – assist with security requirements; liaison with application development, business areas, IT, privacy and other groups; auditing, compliance and investigations; security architecture design and implementation; **application security reviews** and Privacy Impact Assessments (PIA's) (2000-2);
	• Wireless surveys, pen-tests and security architecture consulting for Common IT Services (CITS), Ministry of Management Services (2002-2005); Wireless survey for Simon Fraser University (2006);
	• **FortressOne** - Security Product Architect for Managed Security Services; designed the company's Secure Operations Center (SOC) and service offerings (2000);
	• **ICBC (Information Security and UNIX Support)** – router, firewall and web server/ proxy deployment and administration; security reviews and audits; policy and strategy facilitation; e-business security architecture and implementation (incl. mainframe connection); user and password management (single sign-on and platform migrations); log analysis and consolidation; system hardening; needs assessments and privacy consulting; project management and budgeting; **application security reviews;** firewall/DMZ deployment and testing; forensic investigations (1998-2000);
	• Forensics investigations (2010-12); Development of forensics investigation process for Northern Health Authority (2013); Assistance with development of Business Continuity Plans (BCP/DRP) (2006-present);
	• **University of BC (UBC), BC Institute of Technology (BCIT), Mile2** and others (ongoing) – Security course development & training (CISSP, Wireless, Cryptography, Computer Crime, Windows, Privacy, **Web Application Security,** Disaster Recovery/Business Continuity, **Penetration Testing/Ethical Hacking,** etc);
	• **Security presentations** for various groups including the PIA-BC, CIPS Security SIG, OWASP Vancouver, VaNTUG and VanLUG, Drupal User Group, APCO/NENA, IAFCI, BCIT, UBC, Nexient/Mile2, etc. (ongoing)
	June 1997 – June 1998, Technical Specialist, Mainland Information Systems Projects included Tivoli Storage manager (ADSM) installation and support (IBM sub-contract), network design and implementation, storage management, disaster recovery, **penetration testing**, firewall implementations, database administration, and UNIX and Informix support.
	November 1996 – May 1997, Consultant, RGC Consulting • Security evaluation for VanCity Mutual Funds, incl. penetration testing. • Consultant with ICBC, working as UNIX/Internet Security Specialist assisting the corporation's migration from mainframe to client-server systems; firewall penetration testing.
	September 1994 – August 1996, Senior Consultant, Q-Data Consulting • Facilities Manager/Analyst on EIS/Data Warehouse project for warehousing subsidiary of major transport company. Responsible for planning, provision, maintenance, and integration of all computing facilities, sourcing data from legacy systems and SAP/R2 and R3. • Security audit and facilities plan for international insurance company (Alllianz).
	February 1984 - August 1994, Trainee technical Systems Officer to IT Manager, De Beers/AAC Responsible for the planning, provision, maintenance, and integration of computing facilities for the Ore Evaluation Department. Managed an annual budget and lead a staff complement of three.

Training	*2013 - Athcon Security Conference (2 days)* ***Athens, Greece***
	       incl. Windows Exploit Development Course (Corelan) (2 days)
	
	 2012 - ShakaCon Security Conference ***Honolulu, Hawaii***
	
	 2009 - Certified Wireless Security Professional (CWSP) (re-certified in 2013) *CWNP*
	     - OWASP AppSec-DC Conference and associated training (4 days) - **Washington DC**
	     - European e-Identity Management Conference (2 days) - London, UK
	 2008 - *RSA Security Conference (5 days) –* *San Francisco, USA*
	     - Certified Penetration Testing Engineer / Consultant (CPTE/CPTC) (6 days) - **Tampa, USA**
	     - Annual Security and Privacy Conference - Victoria, BC
	
	 1998-2007 - Westcoast Security Forum Vancouver, BC
	     Annual 1-2-day conference **(committee member 2000-4, chair in 2003)**
	
	 2006 - Annual PolCyb (Policing Cyberspace) Conference – Richmond, BC
	
	 2005 - Certified Wireless Network Administrator (CWNA) – *CWNP*
	     - Designing Security in a Windows 2000 Network – University of British Columbia
	
	 2004 – Certified Information Security Auditor (CISA) – ***ISACA***
	
	 2001 - Blackhat Briefings (2 day conference); Defcon9 (3 day conference) - *Las Vegas,USA*
	 - NT Intrusion Detection and Complete Windows 2000 Security Workshop (1 day each) - Las Vegas,USA
	
	 2000 - Intrusion Detection Systems, 2 days - MIS Training Institute, Vancouver, BC
	
	 1999 - Entrust 4 PKI Administration, 2 days –' Geotrain, Vancouver, BC
	     - Information Systems Professional (I.S.P.) certification – **Canadian Info. Prof. Society (CIPS)**
	     - Certified Information Systems Security Professional (CISSP) certification – **(ISC)²**
	
	 1997-1998, various courses and certifications (IBM AIX, ADSM, IBM Firewall, TCP/IP IBM, USA/Canada
	 Communications, Internet Security)
	
	 1984-1996, various courses (UNIX, TCP/IP, Systems Analysis and Design, Various Institutions, South Africa
	     Organizational Methods and Strategy, Project Management)
	
	 1983 University of Cape Town, South Africa
	 - Bachelor of Science (Honors) degree in Computer Science/Applied Statistics (4 years).

Skills	• Sun Solaris, IBM AIX, HP-UX, Free & OpenBSD, Digital Unix & various other Linux / UNIX distributions; • Microsoft Windows, Exchange, Terminal Server/Citrix, MS Office, IIS; Oracle OpenOffice; • Microsoft, VMWare, Oracle Virtualbox and other virtualization technologies; • Security tools like NMap, Nessus, Rapid7 NeXpose, Metasploit Framework, CORE Impact, Cain&Abel, John the Ripper, Hashcat / oclHashcat, Wireshark, McAfee Database Security Scanner, QualysGuard, etc.; Backtrack / Kali and other Linux security distributions; Immunity & other debuggers; • Penetration Testing and Vulnerability Assessment methodologies, incl. OSSTM. NIST and OWASP; • Application security tools like IBM Appscan, HP WebInspect, AppDetective, AppSentry, Syhunt Sandcat, Fiddler / Watcher, OWASP ZAP, Burp Suite, sqlmap, SOAPUI, Parasoft's .TEST (code review), etc.; • Firewalls, including CheckPoint, Cisco, WatchGuard, Juniper Netscreen and Linux IPTables; • Web Application Firewalls (mod_security, mod_evasive, Citrix Netscaler, Barracuda); • Cisco, Nortel, HP and Juniper routers and switches; • Intrusion Detection Systems (IDS) like Snort, Cisco Secure IDS/MARS and McAfee Intrushield; • Wireless security tools like Kismet, aircrack-ng, AirMagnet and InSSIDer; • Security technologies like RADIUS, PGP, VPNs, SSH, Tripwire, two-factor authentication, biometrics, PKI; • Databases, including Microsoft SQL Server, mySQL, Oracle, Informix, DB2, Sybase and Postgres; • Legal, privacy, compliance & audit standards: FIPPA, PIPEDA/PIPA; Breach Disclosure; Canadian Criminal Code; ISO 27001, COBIT; PCI DSS;