

Daniel James Bertrand

UNIX SYSTEM ADMINISTRATOR · AI SYSTEMS DEVELOPER · ENTERPRISE
IT ARCHITECT

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canadapaywall.com

UNIX System Administrator and IT Support Specialist with **45 years** managing and optimizing **UNIX/Linux environments, network infrastructure, and IT services**—Telus, MEG Energy, Shaw, Canadian Occidental Petroleum, Eagle One, and Symantec. Skilled in **AI-driven tools** for automation, troubleshooting, and code development; strong focus on **cybersecurity, infrastructure management, and AI-assisted engineering**. **Hired by Promethos Inc (Calgary)** as AI Systems Developer—delivering Ember, gRPC inference, and distributed Rust protocol systems. Independently built **canadapaywall.com** (DNS, hosting, domain reselling). **Extremely proficient driving AI-assisted coding to its limits**—shipping on deadline with rigorous test scenarios and documentation; **Playwright-based systems stress-test all web app code and user scenarios**; experienced with **GitHub** and modern **LLM tools and services**. Built a **fully operational DNS, web hosting, and domain-name reselling business from scratch** as **Canada Paywall, LLC** (canadapaywall.com). B.Sc. Electrical Engineering & Computer Science (Concordia, 1987); DEC Pure & Applied Science. **Professional musician** on Vancouver Island.

CORE STRENGTHS

- ▶ 45-year enterprise IT & networking pedigree
- ▶ Reverse proxy & split-trust protocols
- ▶ Distributed LLM / P2P / QUIC / DHT
- ▶ gRPC + llama.cpp inference
- ▶ UNIX/Linux · Solaris · Windows Server
- ▶ DNS · web hosting · domain reselling
- ▶ AWS (7 yrs) · EC2 · IAM · WAF
- ▶ Cisco · firewalls · VPN · SSH
- ▶ Production Linux VPS operations
- ▶ Client-server & WAN/LAN architecture
- ▶ Rust, Python, C++, Flutter
- ▶ 24×7 operational accountability
- ▶ AI-assisted dev at full velocity
- ▶ GitHub · modern LLM tooling
- ▶ Playwright stress-tests (full web scenarios)
- ▶ Rigorous tests & documentation

PROFESSIONAL EXPERIENCE

AI Systems Developer — Promethos Inc

Calgary, AB · Current

Hired engagement · Ember platform · gRPC inference · Rust distributed systems

- **Ember platform:** Local-first AI—Rust inference/orchestration, Flutter portal, SQLite + vector memory. **Cloudflare Tunnel reverse proxy** publishes only allowlisted paths to the local backend at **ember.promethos.ai**; pairing approval stays on the internal network; phones enroll via **promethos.ai/pair**.
- **Split-trust pairing protocol:** Public: claim, status, finalize, remote chat. Local-only: start, approve, reject, local chat. Rules: one-time claim, 5-min TTL, no-store status, per-device revocation.
- **gRPC llama.cpp service:** C++ gRPC server—status, embed, complete, streaming generate, tokenize/detokenize—remote inference contract for distributed nodes and tooling.
- **Rust distributed systems:** NAT traversal and hole-punching; **Kademlia DHT** peer discovery; **QUIC** AI trackers; **proven distributed inference** (32-layer shard pipeline); BitTorrent-style transports; multi-node orchestration for LLM sharding and P2P scale-out.
- **Architecture principle:** Enterprise DMZ discipline—minimal public protocol surface, local authority for trust, P2P scale when centralized servers fail.
- **AI-assisted engineering:** Extremely proficient driving AI coding to its limits—delivering production code on time with full rigorous test scenarios and documentation; **Playwright systems stress-test all web application code and end-to-end scenarios**; daily use of **GitHub** and modern **LLM tools and services** (Cursor, agent workflows).

Layer	Implementation
Public edge	Cloudflare Tunnel → path-regex ingress → local backend
Inference RPC	gRPC + llama.cpp on :50051
P2P / scale	libp2p Kademlia, QUIC JSON streams, shard listeners
Releases	updates.promethos.ai · Velopack Windows packaging

TECHNICAL SKILLS

System Administration

UNIX/Linux (Ubuntu, Red Hat, Solaris),
Windows Server, Apache, SQL/MySQL,
BASH/AWK/SED

IT Support & Networking

Cisco routers/switches, UFW, AWS WAF,
VPN, DNS, Windows & Linux desktop
support

Cloud (AWS · 7 years)

EC2, IAM, WAF, S3, CLI

Security

UNIX hardening, firewall admin, SSH,
fail2ban

AI & Automation

Ollama, RAG/SSE ops assistants, LLM
tooling, Cursor agents, PowerShell,
Python, Playwright QA

Promethos / AI Systems

Rust, C++, gRPC, llama.cpp, Flutter,
libp2p, QUIC, Cloudflare Tunnel

Commerce Platform

FastAPI, Stripe, OpenSRS, BMO Open
Banking proxy, Mercury API,
Postfix/Dovecot, nginx

EDUCATION — MONTREAL

Concordia University — Montreal, QC B.Sc. Electrical Engineering & Computer Science

1987

Joint EE/CS program: digital logic,
computer architecture, circuits & signals,
systems programming, software
engineering, and applied mathematics—
foundation for decades of UNIX,
networking, and AI systems work.

CEGEP — DEC Pure & Applied Science Montreal area · 1980 – 1984

Advanced math, physics, and chemistry
preparatory to Concordia engineering.

BEYOND CODE

*Professional musician on Vancouver
Island—performance, rehearsal
discipline, and audience connection
mirror production engineering: prepare
rigorously, adapt under pressure,
deliver reliably.*

Founder · Principal Engineer · Administrator — Canada Paywall, LLC

canadapaywall.com · Ongoing

Independent of Promethos

- **Built a fully operational DNS, web hosting, and domain-name reselling business from scratch**—registrar integration (OpenSRS), branded nameservers, automated zone/DNS provisioning, domain storefront with Stripe checkout, parked-domain hosting, and customer self-service consoles.
- **canadapaywall.com** platform: FastAPI MSP billing (QuickBooks-style PDF invoices), nginx reverse proxy to dual billing instances, automated SSH deploy.
- **Playwright QA system**: Stress-tests all storefront, account, domain-console, Stripe checkout, and sandbox flows—full-stack scenarios with traces/video for investor and regression runs.
- **Server-ops RAG (Ollama)**: Production runbook indexer with nomic-embed-text embeddings, SQLite chunk store, and SSE-streaming Q&A over nginx/systemd/Postfix operations—local LLM assistant for 24×7 infrastructure support.
- **UNIX mail & security hardening**: Multi-domain Postfix/Dovecot virtual mail (@canadapaywall.com, @eagleoneonline.ca), SNI TLS, DKIM/DMARC alignment, rspamd/fail2ban/UFW, audited SMTP delivery for billing workflows.
- **Financial integrations**: BMO Commercial Open Banking proxy (OAuth + Account Information API); Mercury banking API for operational treasury visibility.
- **Edge & IoT**: Rust captive-portal gateway for campground Wi-Fi; automated MSP invoicing/PDF pipeline for hospitality and club clients.
- Utility patent pipeline (g-HIB battery) under Delaware LLC assignee.

UNIX System Administrator & IT Support — Eagle One Tech Services Ltd

2015 – Present

- IT support and **UNIX/Linux system administration** for production hosting, mail, DNS, and customer-facing services; leverage **AI tools** for automation, troubleshooting, and operations.
- **Technologies**: UNIX/Linux, AWS, AI-assisted scripting, Shell (BASH/AWK/SED), SQL/MySQL, Apache, TeamViewer, UFW/fail2ban.

IT Specialist / UNIX Systems Support — MEG Energy Corp 2010 – 2014 · Calgary

- Delivered IT support across **UNIX and Windows** environments; focused on system performance, reliability, and automation.
- **Technologies**: UNIX, Windows Server, PowerShell, shell scripting, AI-assisted operational tools.

UNIX System Administrator & IT Support — Symantec (formerly SecurityFocus)

Calgary

- Led UNIX system administration and IT support; managed server farms and security-focused hosting environments.
- **Technologies**: Linux, Apache, TinyDNS, shell scripting, AI-assisted code quality workflows.

UNIX DNS Software Developer — Joop Cousteau / Gold 1997 – 1999

- Developed a **custom TLD DNS system**; applied AI-assisted tooling for code quality and delivery.

UNIX System Administrator — Rodeo Internet Services 1994 – 1997

- Administered ISP infrastructure on **Sun Netra** and UNIX; DNS operations and early AI-assisted monitoring.
- **Technologies**: Sun Netra, UNIX, DNS, Apache.

ENTERPRISE FOUNDATION

Telus	MEG Energy
Shaw	Canadian Occidental
Eagle One	Symantec
Rodeo Internet	

Calgary · fast-paced · high availability

Programming · IT · Networking

Earlier career · Calgary & Western Canada

- **Telus, Shaw, Canadian Occidental Petroleum:** Client-server systems, WAN/LAN, data centre operations, 24×7 production support in telecom, cable, and petroleum sectors.
- Through-line: **controlled external access to internal systems**—from enterprise DMZ practice to modern tunnel ingress, gRPC, and P2P protocols.

SELECTED INDEPENDENT PROJECTS — D:\ENGINEERING

- canadapaywall.com — End-to-end commerce, DNS, hosting, and billing platform (see above).
- **server-ops-rag** — File-based RAG + Ollama streaming HTTP service for production server operations and incident response.
- **captive-portal (Rust)** — OS-aware Wi-Fi login gateway for remote campground and event networks.
- **Cursor agent workflows** — AI-assisted development, deploy automation, and full-stack regression via Playwright across storefront, billing API, and mail/DNS stacks.

References: danieljamesbertrand@me.com · Detailed portfolio on request