BRETT BARTRUM

Staff / Principal Platform & AI Infrastructure Engineer

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SUMMARY

Platform and AI engineer with 20 years of building stable systems that other people depend on, from enterprise systems management to cloud, Kubernetes and production AI, and now systems that improve themselves. I love hard problems and solve them so they stay solved: find the real cause, fix it properly, prove the fix holds, and document it. At work I shipped an AI-assisted change-approval system with InfoSec and compliance sign-off. In 2020 I founded an e-bike shop, and for it I built and run Shepherd, a production AI platform for repair shops, as its only engineer. I also bring a business owner's view of cost, risk and the people who use what I build. Seeking a Staff or Principal IC role where I own technical direction.

HIGHLIGHTS

- Own the delivery and monitoring pipelines for 30+ environments at a regulated software company, dev through production, with every deployment hands-free
- Shipped audit-grade AI at a regulated software company: rules decide, AI advises, every control mutation-tested, InfoSec and compliance signed off
- Built and run a full production AI platform alone: AI assistant, 126k-part catalog, omni-channel inbox, GIS map, automated podcast, iOS/Android app shell
- Run my own multi-site network: Home Assistant (1,000+ IoT devices), UniFi, and Blue Iris with custom AI
- Known for root-causing hard problems: a 21-second login timeout fixed to 0.3 s, months of silent data loss traced to a duplicate key, controls that could never fire

CORE SKILLS

AI & data: LLM agents and tool use, RAG, hybrid vector search, LLM evaluation, inference routing, Claude, Claude Code, Jev classification, Google Antigravity, Azure OpenAI, GCP Vertex AI, MCP, Meilisearch, Azure SQL, Cloudflare D1, data pipelines

Platform: Azure, AKS / Kubernetes, Linux and Windows Server, Infrastructure as Code (Terraform, ARM, Crossplane), serverless and edge (Cloudflare Workers, Durable Objects), Docker, Helm, F5, Azure API Management, networking, architecture

Delivery & ops: GitOps, CI/CD and automation (GitHub Actions, GitLab CI, Octopus Deploy, TeamCity, working with ArgoCD), OIDC / Workload Identity, SLOs, on-call and incident response, SRE practices, mentoring, security review

Observability: OpenTelemetry pipelines with Vector, Prometheus, Grafana, OpenSearch, Datadog, Splunk, Azure Monitor, SquaredUp, PostHog, Power BI

Languages: TypeScript, Python, Go, PowerShell, Bash, SQL

EXPERIENCE

Shop DAWG | Founder & Principal Engineer, Shepherd platform Jan 2025 – Present

Sole architect and engineer of a production AI platform for e-bike repair shops on Cloudflare Workers, built first for my own shop

- AI repair assistant: Claude agent with 10 tools, a sub-300 ms intent classifier, and hybrid retrieval over 3,575 manuals and 2,175 articles (780,000+ indexed passages), plus a probability-ranked diagnostic knowledge graph
- Built retrieval and diagnostic eval harnesses: raised diagnostic top-1 accuracy from 16/20 to 19–20/20, removed a reranker that measured slower and less accurate (p50 1,073 ms to 342 ms), and rejected three vendor models on measured data
- Parts catalog of 126,714 products from 82 sources: Jev placed 94.6% into a 139-category taxonomy automatically (0.4% misplaced, hand-checked); search answers in ~200 ms and groups 100,334 listings into 12,283 variant families
- Amazon price cross-reference (Keepa): 113,529 prices and 150,686 history points, with Buy Box and MAP-violation tracking
- ShopTalk: one inbox for SMS, email, Messenger and calls, with WebRTC huddles and AI voice and chat assistants
- Integrations with Square, RingCentral, HubTiger, Monday.com, Google and Meta on 34 durable Workflows; cut HubTiger sync time 88% (10 min to 1:24)
- Self-improving by design: daily jobs find knowledge gaps and stale articles and open review PRs, solved customer conversations become KB drafts, and every AI change must pass evaluation gates
- GIS shop map (Google Maps + deck.gl) over 4,594 locations, and a fully automated daily industry podcast from 38 sources with fact guards and spend limits
- Built MCP servers for AI agents: Microsoft 365 + Gmail (35 tools) over a 269,000-message archive in sharded D1 with hybrid vector search and 7.5 GB of attachments in R2, plus RingCentral (48 tools); and a Capacitor iOS/Android app shell
- Reliability and security: exact rate limiting on Durable Objects, closed unauthenticated write routes, cut a hot query from 1.7 s to 16 ms and the Worker bundle from 28 MB to 7.6 MB; 1,918 merged PRs and 1,130 test files in 2026

- Also built PawPass, an auth and payments gateway for e-bike courses (Logto, Square, Moodle), 43 self-hosted n8n workflows, and a 9-source marketing data pipeline with its own MCP

Juiced Wheels, St. Charles, MO | Founder & Owner Nov 2020 – Present

Full-service e-bike shop: sales, service, repair and rentals

- Founded the shop in November 2020, when no local shop would service my own e-bike; grew it to a peak of 10 staff (about 5 today, by season), with a 4.8-star rating across 185+ Google reviews
- Hired and built a team that runs daily operations, so my own time goes to the shop's technology; its needs became the product requirements for Shepherd

EZLynx, an Applied Systems company | Senior DevOps Engineer Dec 2023 – Present

- Own the end-to-end delivery pipeline for 30+ dev, team and production environments: GitLab for source, TeamCity for builds and packaging, Octopus Deploy releasing to Azure, on-premises and GCP, plus AWS S3 storage
- Own the monitoring pipeline: Splunk, Azure Monitor, Datadog and more in one SquaredUp pane of glass, with alerting routed to the teams who respond; redesigned noisy alerts (90-day backtest: 2 pages, both real)
- Designed and built an AI-assisted change-approval (CAB) system end to end; in production in about 3 months with InfoSec and compliance sign-off; 1,900+ reviews across ~1,000 changes, expanding to EU and UK teams
- Made AI decisions auditable: deterministic risk tiering, an advisory-only LLM panel, kill switches and an audit trail; mutation-tested every control, which found and fixed four that could never have fired
- Built two AKS clusters and the Octopus Kubernetes worker platform; rebuilt an inherited 153-API gateway as code, taking login from a 21 s timeout to 0.3 s
- Led the Azure Application Gateway to F5 migration and redesigned the Terraform landing zone; designed CI scaling ~45% cheaper than adding VMs from 30 days of agent data
- Built Datadog migration tooling (34 resource types); led AI enablement, including Claude Enterprise cost analytics in Power BI

EZLynx | Senior Cloud Engineer Nov 2018 – Dec 2023

- Started in Aug 2018 as the Dell EMC consultant on EZLynx's engagement, joined full time that November, and helped build out its IT department through hypergrowth to the 2021 Applied Systems acquisition, on a lean team of under 300
- Moved to DevOps when production reliability became the bigger need and put every deployment and release on GitOps, automated with PowerShell and Octopus Deploy; nobody had to log in to a Windows server to ship code again
- Automated Windows server builds end to end, from bare metal through the app stack to monitoring, with no manual steps

Dell, then Dell EMC | Technical Consultant, then Solutions Architecture Consultant Oct 2012 – Nov 2018

- Stayed through Dell's 2016 EMC merger; specialized in hyper-converged infrastructure, designing Dell EMC HCI solutions
- Architected Arizona State University's Azure environment on Azure Resource Manager (ARM) and planned its workload migration; certified on both public Azure and Azure Stack
- Invited to Microsoft's Windows Server 2019 train-the-trainer in Redmond, then presented it to Dell EMC's consultants
- Designed and deployed SCCM 2012 for 5,000 JCPenney retail stores, with a migration path from physical to virtual servers
- Designed an Altiris-to-SCCM migration for Jacobs Engineering spanning 400+ sites and 40,000 nodes, and trained their staff

TKC Global | Senior Systems Engineer Jun 2010 – Oct 2012

- Lead engineer on Thompson School District's district-wide uplift (Loveland, CO): Novell to Active Directory for 6,000+ clients, with SCCM at its heart; Active Directory remediation for USA Truck; taught SCCM 2012 classes to enterprise IT teams
- Customer liaison at a major Microsoft conference; received TKC's Professional Services Overachiever Award (2011)

MiTek, a Berkshire Hathaway company | LAN Administrator Oct 2008 – Jun 2010

- Upgraded SMS 2003 to SCCM 2007 across 12 sites and 1,000+ machines; wrote and led disaster recovery for 200+ critical servers
- Integrated acquired companies onto MiTek's networks, domain, email and security; Warren Buffett visited and congratulated us

Wright City School District | IT Specialist Jun 2006 – Jun 2008

- Systems management, an Exchange 2007 migration for 1,400+ users, and networking for 800 computers

SPEAKING & RECOGNITION

Talks: AI hybrid search on Cloudflare, OPO Startups (2026); AI and ethics, Ethical Society Mid Rivers (2023); Windows Server 2019, Dell EMC (2018) · OPO Demo Day 2025: 3rd Place and People's Choice · Dell Global Support and Deployment Bronze Award (FY16)

EDUCATION & CERTIFICATIONS

Datadog Fundamentals, 2026 · Master Bike Mechanic, Bikes Together, 2015 · Linn State Technical College, networking

Microsoft: MCSE Cloud Platform and Infrastructure (2018), Azure (2016), MCSA Office 365 (2015), MCITP Enterprise Administrator (2012), plus 16 more · Cisco CCNA, CCDA · CompTIA Security+, A+