Phil Piwonka
Software Engineer

I love computers and writing software for them.

- Seattle, United States
- jobs@pdp.dev
- pdp.dev
- [wnka](https://github.com/wnka) (GitHub)
- [@pdp@hachyderm.io](https://hachyderm.io/@pdp) (Mastodon)

Work

Principal Software Development Engineer

AWS Bedrock

Sep 2025 – Present

Member of the Project Mantle team within AWS Bedrock

Principal Software Development Engineer

AWS Lambda

Apr 2016 – Sep 2025

Member of the AWS Lambda team

Senior Software Development Engineer

Amazon Kindle

Sep 2010 – Apr 2016

Member of the Kindle team

Software Development Engineer

Microsoft

Nov 2006 – Sep 2010

Member of the SQL Server team

- Focused on providing enterprise customers and developers with robust, scalable, and customizable synchronization solutions as a member of the SQL Server and SQL Azure Data Synchronization Team.

- Primary developer on the Database Providers for the Microsoft Sync Framework, an API that enables developers to add peer-to-peer database synchronization capabilities to applications, services and devices.
- Collaborated with external teams to deliver Database Provider integration in Visual Studio 2010 and 2008, enabling configuration of database caching and synchronization from within Visual Studio projects.
- Designed and implemented new Merge Replication features for the SQL Server 2008 release.
- Provided support for customers by working with the Customer Support Team to help diagnose urgent customer reported issues and drive them to resolution.
- Attended multiple conferences such as TechEd and TechReady to interface with customers, collecting feedback and providing guidance.
- Helped on-board new developers by teaching them current implementation and design details, as well as development processes and expectations.

Software Engineer

Lockheed Martin

Jun 2003 – Oct 2006

Worked on near-realtime processing systems

- Designed, implemented, documented, and tested mission-critical numerical and clustering algorithms for processing data in a near-realtime high-performance UNIX parallel computing environment.
- Utilized multithreading and shared memory programming models to scale algorithms in order to meet near- realtime processing requirements.
- Wrote analysis tools in C++, Matlab, and Perl to help prototype and validate algorithms.
- Interacted significantly with multiple customer organizations via delivery briefings and working groups.
- Successfully lead several software development tasks.

Gawker

Open Source Project

Jan 2005 – Jan 2010

Creator and sole developer of "Gawker", an open source application that allows users to create parallel time- lapse movies using video cameras connected over a network.

- Featured on tuaw.com, lifehacker.com, digg.com, makezine.com, macupdate.com, and versiontracker.com.

Education   University of Colorado

Five Year Program for Bachelors and Masters Degrees in **Computer Science**
Jun 1998 – Jun 2003

Publications

Firecracker: Lightweight Virtualization for Serverless Applications

Published by **USENIX Association**
Jan 2020

We describe how specializing for serverless informed the design of Firecracker, and what we learned from seamlessly migrating AWS Lambda customers to Firecracker.

On-demand Container Loading in AWS Lambda

Published by **USENIX Association**
Jul 2023

Awarded Best Paper at USENIX ATC'23! - We describe the storage and caching system we built, optimized for delivering container images on-demand, and our experiences designing, building, and operating it at scale. We focus on challenges around security, efficiency, latency, and cost, and how we addressed these challenges in a system that combines caching, deduplication, convergent encryption, erasure coding, and block-level demand loading.

AWS Lambda 10 Year Celebration Livestream

Published by **Serverless Land (AWS YouTube channel)**
Nov 2024

I represented the AWS Lambda engineering team on this livestream celebrating 10 years of the service, talking about how the service thinks about availability and making sure customer workloads of all shapes and sizes get a great experience. We also discussed how Lambda evolved into building and using Firecracker for virtualization and the challenges of doing a large scale migration.

Skills

Programming Languages

Java C/C++ Microsoft .NET

Objective-C Python Go

Rust

Server Technologies

SQL DynamoDB SQS

Memcached EC2

Client Platforms

Android iOS Mac Qt

Interests

Pinball / Arcade games

Music