

# Ted Percival

ted.percival@gmail.com  
github.com/tedjp

## Key skills and experience

---

- High performance web servers in Go and C++.
- HTTP, including HTTP2, with an emphasis on optimizing cache hit rates, object reuse, and data compression.
- Large-scale live video streaming including DASH, HLS and proprietary formats.
- C++ and C systems programming on Linux and Unix, including C++11, C++14 & C++17.
- Linux System Administration.

## Employment history

---

### Sling TV — Principal Software Engineer

October 2014 – present

Lead developer of Dynapack HTTP server. Serves Sling TV live and on-demand content in DASH, HLS and proprietary streaming formats. Serves thousands of requests per second to millions of subscribers. C++ and Go.

- DASH streaming: manifest/MPD production, MP4 packaging and Common Encryption
- HTTP Cache efficiency improvements: automatic ETags and conditional request handling, adaptive max-age, and modern cache-control mechanisms
- HLS streaming improvements and compliance, HLS versions 3 through 7
- Reusable HTTP client and server functionality
- Reusable network object cache
- Proof-of-concept next generation servers in C++ and C
- Thread-safety improvements
- Clip server to bridge functionality of backend metadata systems
- Work with operations staff during software roll-outs and production troubleshooting
- Work with 3<sup>rd</sup> party player developers
- Ubuntu/Debian packaging

### Dell — Software Engineer

November 2005 – October 2014

**Safeguard** – Enterprise identity and password management

- Developed client web application using Angular, Bootstrap, HTML, CSS and JavaScript.
- Interfaced with REST services API.

**Quest Authentication Services** – Linux and Unix integration with Microsoft Active Directory

- IPv6 support – planned and implemented across the product
- SNTP implementation
- Atomic file modification support in core libraries

**Resource Central** – Open source application integration for Quest Authentication Services

- Apache HTTP Server authentication module
- Sudo external identity provider integration
- Wireshark packet dissectors for Telnet encryption negotiation and Kerberos S4U2Self
- PAM conversation support in XScreenSaver

## **St Peters Lutheran College — Help Desk (IT Support)**

November 2004 – November 2005

- System administration of load-balanced email and web proxy infrastructure
- Telephone and email-based IT support

## **Brisbane West Chamber of Commerce — Web Developer**

June 2004 – September 2004 (contract)

- Commercial website with database-backed dynamic content.

## **Hobby projects**

---

**shitty** – HTTP server framework and HTTP/2 HPACK library in C++

**fb64** – Base64 encoder and decoder

**firehose** – Multicast forwarder

**proxymoron** – Transforming HTTP proxy in C

**goxymoron** – Transforming HTTP proxy in Go

**wtfld** – Novelty network service

**ish** – Insecure remote shell

**Nerts** – Android card game

**Stallone** – NAT port-mapping gateway

**tzdata-au** – Corrected Australian timezone data for Debian and Ubuntu

Various minor and trivial contributions to projects including Wireshark, Go, Proxygen, Sudo, W3C, Debian, Pidgin, GNOME, Avahi and Linux.

## **Education**

---

Studied “Diploma of Information Technology (Software Development – Object-Oriented Programming)” at Brisbane North Institute of TAFE, 2003 to 2005.

## **Certifications**

---

- Hurricane Electric Certified IPv6 Sage, 2011
- Cisco Certified Network Associate (CCNA), 2003