

Matias Choi

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SUMMARY

Software Engineering Manager with 16 years building and leading high performance systems, networking, game engine, and content delivery across desktop, mobile, and console platforms. Guides multithreaded C++ architecture, custom protocols, **real time state synchronization**, asset streaming, Linux networking, QoS, congestion control, caching, and bandwidth adaptation. Leads technical strategy, architectural roadmaps, operational quality, delivery planning, mentoring, and cross functional alignment across engine, platform, content, and infrastructure teams. Delivers **client server** systems that balance latency, reliability, CPU, memory, storage, and bandwidth constraints for large concurrent populations. Practical experience spans CDNs, cache eviction, prefetching, **download prioritization**, compression, decoding, incremental loading, and **time to first frame** improvements. Brings calm technical judgment and direct team leadership that can support dependable transport systems and sustained engineer growth.

EXPERIENCE

Software Engineering Manager, Networking and Streaming

January 2022 - Present

Vertex Forge Interactive

San Jose, CA

Leads systems engineering for real time networking and **asset streaming** across desktop, mobile, and console clients. Owns architecture, execution, operational quality, engineer development, and coordination across engine, platform, content, and infrastructure groups.

- Led multithreaded **C++** transport architecture supporting millions of concurrent client sessions across three platforms.
- Set protocol and QoS direction, balancing latency, **reliability**, CPU budgets, memory pressure, and **bandwidth**.
- Directed CDN caching, prefetching, decoding, and **incremental loading** under platform specific **memory** constraints.
- Aligned engine, platform, content, and infrastructure teams through release planning and production incident reviews.
- Mentored engineers through design reviews, performance investigations, ownership planning, and career development conversations.

Engineering Manager, Engine Systems

March 2019 - December 2021

Blue Lantern Games

Santa Clara, CA

Managed engine systems work for latency sensitive client server networking and content delivery. Guided technical decisions, performance analysis, mentoring, and delivery across resource constrained platforms.

- Designed C++ client server components that balanced **storage**, bandwidth, CPU, and memory constraints.
- Applied multithreading, **smart pointers**, templates, and **custom allocators** to improve runtime predictability.
- Built **state synchronization** and bandwidth aware scheduling using **Linux networking** and traffic prioritization.
- Advanced **asset delivery** through caching, prefetching, compression, decoding, and incremental loading techniques.
- Coordinated design reviews, instrumentation, documentation, mentoring, and platform partner decisions.

Senior Software Engineer, Network Systems

July 2015 - February 2019

Aperture Grid Technologies

Mountain View, CA

Owned network systems implementation for high performance **client server** services. Delivered transport, synchronization, content delivery, and diagnostic improvements while partnering with platform and infrastructure engineers.

- Designed C++ networking components for **latency** sensitive client server workloads across supported platforms.
- Applied profiling and systems debugging to expose **CPU**, memory, queue, and throughput bottlenecks.
- Built transport behavior with Linux networking concepts, telemetry, traffic prioritization, and **bandwidth adaptation**.
- Improved **asset delivery** using **cache eviction**, download prioritization, prefetching, and incremental loading.
- Shared technical ownership through architecture reviews, implementation guidance, documentation, and engineer mentoring.

Software Engineer, Game Engine Networking

June 2012 - June 2015

Redwood Arc Studios

Palo Alto, CA

Developed game engine networking and content systems for desktop, mobile, and console experiences. Contributed to state synchronization, asset loading, runtime performance, and cross team delivery.

- Implemented C++ **client server** components for real time **game networking** and content systems.
- Improved synchronization behavior through multithreading, transport analysis, and **bandwidth** aware scheduling.
- Reduced runtime pressure with smart pointers, **templates**, **custom allocators**, and targeted profiling.
- Advanced **asset loading** through compression, decompression, decoding, prioritization, and incremental delivery.
- Partnered with engine and content teams during performance testing, release validation, and production support.

Software Engineer, Systems Development

June 2010 - May 2012

North Coast Software Lab

San Francisco, CA

Built foundational systems software for networking and content workflows. Supported implementation, testing, profiling, documentation, and operational improvements under close collaboration with senior engineers.

- Implemented C++ systems components for **client server** networking and content delivery workflows.
- Used multithreading and profiling to investigate CPU usage, memory behavior, and queue performance.
- Supported **Linux networking** analysis, traffic prioritization, telemetry, and bandwidth aware scheduling.
- Contributed caching, **prefetching**, **compression**, decoding, and incremental loading improvements.
- Documented design findings and supported reviews with engine, platform, and infrastructure partners.

PROJECTS

Cross Platform Asset Streaming Architecture 📅 2024

Led a separate architecture effort for prioritized asset delivery across desktop, mobile, and console. Balanced cache behavior, prefetching, decoding, memory budgets, bandwidth adaptation, and time to first frame.

Real Time State Synchronization Framework 📅 2021

Directed a transport focused framework for state synchronization in client server experiences. Combined multithreaded C++, protocol decisions, QoS analysis, and production telemetry for dependable runtime behavior.

LEADERSHIP & AWARDS

- Engineering leadership recognition for dependable delivery across networking, engine, and content initiatives.
- Peer recognition for mentoring engineers through complex performance investigations and architecture reviews.
- Technical contribution recognition for cross functional alignment across platform, content, and infrastructure teams.

EDUCATION

Bachelor of Science in Computer Science

2010

San Jose State University GPA: 3.8

San Jose, CA

Coursework: Operating Systems, Computer Networks, Distributed Systems, Software Architecture

CERTIFICATIONS

- Certified ScrumMaster 📅 2020
- C++ Institute Certified Associate Programmer 📅 2018

TECHNICAL SKILLS

- **C++ Systems Programming:** C++, smart pointers, templates, custom allocators
- **Concurrency:** Multithreading, synchronization, thread safety
- **Network Transport:** Network stacks, custom protocols, transport optimization
- **Linux Networking:** Linux networking, QoS, congestion control algorithms
- **Content Delivery:** CDNs, caching layers, cache eviction
- **Asset Streaming:** Asset pipelines, incremental loading, decoding
- **Bandwidth Management:** Bandwidth adaptation, download scheduling, prioritization
- **Compression:** Compression, decompression, resource packaging
- **Performance Engineering:** CPU profiling, memory analysis, latency testing
- **Client Platforms:** Desktop, mobile, console
- **Systems Architecture:** Client server architecture, architectural roadmaps, game loop architecture
- **Engineering Leadership:** Technical strategy, mentoring, design reviews

SKILLS

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|-------------------------|--------------------------|-------------------------|---------------------------|
| • C++ | • Asset streaming | • Bandwidth adaptation | • Download prioritization |
| • Linux networking | • Game engine networking | • Multithreaded systems | • Technical strategy |
| • QoS | • CDNs | • Custom protocols | • Engineering mentoring |
| • State synchronization | • Caching | • Memory optimization | |

PROFESSIONAL AFFILIATIONS

- Member, Association for Computing Machinery, systems and software engineering community.

- Participant, C++ community and open source systems engineering discussions.

LANGUAGES

- English (Native)
- Korean (Proficient)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST