

Pankaj Singhal

B. Tech - The LNMIIT, Jaipur

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SUMMARY

- 11.5+ years of Software Development experience, with 3+ years in Engineering Leadership roles
- Proven ability to lead high-performing teams in designing, developing, and scaling complex distributed & concurrent backend systems for millions of users, specializing in gaming, payments, and messaging domains

SKILLS HIGHLIGHTS

- **Languages:** Java, Python, C, Shell, Android (Basic)
- **Databases:** MySQL, MongoDB, Redis, Elasticsearch, HBase, BigTable(BT)
- **Frameworks:** Netty, Spring, Hibernate, Django, Flask, Thrift
- **Technologies:** MQTT, HTTP, Zookeeper, WebSocket, REST, Kafka, Jenkins, Docker, SmartfoxServer, Maven
- **Cloud:** AWS Stack (EC2, S3), GCP Stack (Compute Engine, Big Query, GCS, LB), Firebase (FCM)
- **Soft Skills:** SDLC, Mentoring, Leadership, Stakeholder Management, Project Management, Hiring
- **Expertise:** microservice arch, DB optimization, cloud infra mgmt, CI/CD, cost savings, performance improvements

PROFESSIONAL EXPERIENCE

Hike Messenger

Delhi, India

Engineering Manager

July 2023-present

Managing a **team of 8+ engineers to build** gaming & payments stack in RUSH handling **>36K concurrent users**, 26K games with avg duration-10 min(**10M game session/day**), payments doing **40M+ txn/day**, generated \$1.5M Net Rev/day

- Re-architected Matchmaking to **async NIO**, achieving **100x scale** for large user tournaments with zero downtime
- Saved \$60k+ annually by replacing SFS with inhouse RGB server(\$50k) and consolidating low-CCU games(\$10k)
- **Led an 10-engineer team** to launch the '**Bingo**' app in **2 months** for the US market, delivering core gameplay, payments, features like user onboarding, refer a friend, spin the wheel,ccms
- Improved Leaderboard & GT performance by ~70% latency reduction via DB Query optimizations
- Reduced metric collection n/w load by 98% & UDP error by 100% by migrating centralized to decentralized Statsd
- Developed backend load testing env, enabling at-scale validation of critical systems - RGB server, MM re-arch
- Established Jenkins CI/CD pipeline ensuring robust deployment & Kafka for streaming analytics events (all apps)
- Resolved RGB server MT bugs, sped up deployment by parallel & autoscaling servers & adding live user migration
- Overnight shipped a dynamic API URL config system for RUSH, preventing service disruption from domain blocks
- Launched Loyalty programs pivoting to wagering/tenure-based rewards, boosting user retention and revenue
- Championed gaming backend Dockerization, boosting Dev & QA productivity via isolated testing environments
- Led successful RNG Certification with GLI for game fairness

Tech Lead

Jan 2021 - June 2023

Managed team of 8+ engineers, spearheaded technology at multiple cross-functional products from inception in high pressure startup env. Responsible for providing Available, Reliable, and Scalable infrastructure.

- Shipped 18 high quality casual/hyper-casual games at scale leading internal & 3rd party teams
- **Developed NETTY/NIO based inhouse game server**(replacing SFS) with a team of 4 devs, achieving 4x CPU & 16x MEM reduction, supporting 10M user games/day
- Horizontally scaled by splitting single/multi pool tables across servers & solving for CPU, mem leak performance
- Restructured gaming backend into a Git submodule umbrella project, improving deployment & code protection
- Reduced latency by 50% across mm, game-start, winning dist by DB call optimization, piggybacking game packet
- Reduced various '*money deducted game not started*' scenarios (hence user complaints) to <0.01%, enhancing UX
- Reduced Matchmaking Failures to <0.1% by restructuring code for precise failure identification and targeted fixes
- Developed a Ludo bot, including design, architecture, and metric analysis to demonstrate skill-based gameplay

Tech: GCP,NETTY, Java, MongoDB, MySQL, Redis, SmartFoxServer, GCP, HTTP, NIO, WebSockets

Sr. Software Engineer

Jul 2017 - Dec 2020

Worked in the core backend team of Hike **handling 15M+ DAU, 7M+ concurrent connections, 1B+ messages/day for 100M+ users**. Have also scaled & re-architected several systems to handle exponential growth in messaging & users

- Single-handedly built wallet & payments infra for RUSH from inception to launch in record 1 month
- AddressBook - Migrated live DB from Mysql → HBase → BT along with redis based cache layer & zero downtime
- Timeline stories - Migrated live DB from HBase → BT(saved \$1.7k/m) with data checks & zero downtime
- Reduced Message loss by 60% by server-side message tracking hence Increased message reliability
- Designed and developed a low-latency, scalable queuing solution to process messages in synchronous order
- Refactored various features into microservices like auth, user db, block, friends, Send-Mqtt, Addressbook
- Improved File Transfer with pause/resume via chunk uploading, original md5 checksum powered fast uploads
- Integrated with APNS & FCM for Push notif at scale, maintained for new sdk ver, huge # of in-app message types
- Improved Push delivery by various means - retry, SMS, direct tray notif, high priority type 'm', collapsible

Tech: AWS, GCP, Netty, NIO, MQTT, Java, Python, Jetty, Redis, Mongo, Mysql, HBase, BT, FCM

Software Engineer

May 2014 - Jun 2017

- **Led 3 engineers to build the entire wallet & payments stack** for Hike, in app products for micro-payments
- Integrated multiple PGs for payment, recharge partner, automated reconciliation, security, CS frontend & tooling
- Developed talktime referral rewards by integrating recharge partners, increased DAU by 2X
- Refactored legacy signup flow as a microservice, reduced OTP friction by adopting missed call based verification
- DX Framework- ZK based rule engine enabled PMs to experiment on user signup journey, scheduling Day 0-N msg
- Developed 'Natasha' AIML chatbot, offering custom hike-made services (Wiki, weathers, hike caller, fake call)
- Developed common backend modules- queues, Kafka, ZK, Redis wrappers, conn. pool, etc to be used by int. teams

Tech: AWS, Java, Python, Jetty Jackson, Redis, Mongo, Mysql, ZooKeeper (ZK)

BlackNGreen

Gurgaon, India

Software Engineer

July 2013-Mar 2014

- Developed a platform which allows the development of custom IVR(Interactive Voice Response) using drag-n-drop. It is also equipped with a scheduler for OBD(Outbound Calls)

AWARDS

- Won Uber hackathon by integrating their APIs in hike & providing an MVP of Uber's services within hike
- Won Hike hikeathon by making an MVP of one of the most requested feature - Number Migration