# Charles Hayes

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*Senior Backend Software Engineer*


**CAREER SUMMARY**

Senior backend software engineer with extensive experience building Java and Python services, REST APIs, and distributed applications. Quickly navigates complex codebases and takes ownership of backend development, system integration, Kubernetes deployments, and production troubleshooting. Combines hands-on engineering with automated testing, CI/CD, and database expertise to deliver reliable, maintainable solutions. Known for solving cross-functional problems, mentoring engineers, and contributing effectively with minimal oversight.

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## BACKEND SKILLS

Python, Java, C++, Flask, FastAPI, Spring Boot, REST APIs, SQLAlchemy, Alembic, JUnit, Pytest, GoogleTest, GoogleMock, TDD, Distributed Systems, Microservices

## INFRASTRUCTURE SKILLS

Kubernetes, Docker, Docker Compose, Helm, Ansible, AWS (foundational), Jenkins, GitLab CI/CD, GitHub Actions

## DATA & MESSAGING

PostgreSQL, MySQL, Oracle, Elasticsearch, Kibana, Kafka, MongoDB

## CERTIFICATIONS

*July 8, 2025*
**SAFe 6.0 for Teams**

*April 21, 2025*
**CompTIA Security+**

## EDUCATION

*1990 - 1992*
**Spartan College of Aeronautics and Engineering**
Avionics, 3.0 GPA, Obtained FCC License

## PERSONAL ACTIVITIES

**Arduino Projects**

**Continuous Learning**

**Oil Painting**

## RELEVANT WORK EXPERIENCE

**Senior Software Engineer**
*Frontier Technology / RAFT - July 2023 - Present*

- Develop and maintain Flask REST APIs and backend services using Blueprints and SQLAlchemy; strengthen reliability with Pytest unit and integration tests, including monkeypatch-based mocking.
- Develop efficient PCAP search capabilities that enable cybersecurity analysts to locate, preserve, and download packet captures for investigation and further analysis.
- Collaborated with the platform team to refactor Ansible playbooks into reusable roles, standardizing automation and simplifying ongoing maintenance.
- Designed and implemented a centralized quality observability solution that normalizes test results across frameworks and CI/CD pipelines into an Elasticsearch data stream, with Kibana dashboards for quality trends and metrics.

**Senior Integration and Test Engineer**
*Boeing / Actalent - July 2020 - July 2023*

- Integrated and validated Kubernetes-deployed microservices for satellite ground-station software, diagnosing deployment and service issues across distributed environments.
- Built Python/Pytest integration tests for APIs, service-to-service communication, network behavior, and end-to-end ground-system workflows involving modem emulators and virtual switches.
- Managed Kubernetes application deployments and Helm upgrades, partnering with development and platform teams to resolve release and environment issues.
- Diagnosed cross-service failures with systems engineers and operators, isolating networking, configuration, and deployment issues affecting mission-critical workflows.
- Created repeatable integration validation workflows that expanded test coverage, reduced regression risk, and helped new engineers ramp up on the ground-system architecture.

# EARLIER ENGINEERING EXPERIENCE

**Lead Software Engineer in Test**
*TEKsystems - September 2019 - July 2020*

- Advised client engineering teams on continuous delivery and testing, mentoring developers and improving automation frameworks, CI/CD pipelines, and quality reporting.
- Architected a data-driven test framework using TypeScript, Serenity BDD, Cucumber, and the Screenplay pattern, producing readable tests aligned with business workflows.
- Integrated automated test frameworks with InfluxDB by publishing JSON execution results, enabling timely visibility into quality metrics.
- Authored a framework architecture and maintenance guide, enabling client teams to support and extend the solution after the consulting engagement.

**Senior Software Engineer in Test**
*T-Mobile - June 2018 - September 2019*

- Built a Java 11 test automation framework using Gradle, JUnit 5, Selenium, and Allure to validate the user interface of the Layer3 TV set-top box product.
- Added Jest unit tests to the application codebase to catch defects earlier and support safer changes.
- Developed a remote-control simulator to programmatically interact with the set-top box and support automated testing.
- Championed test-driven development (TDD) through hands-on demonstrations and guidance, helping the development team adopt the practice.

**Senior Software Engineer in Test**
*The Judge Group (6-month contract) - January 2018 - June 2018*

- Architected a REST API test automation framework for Dish Network back-office services using Java 8, JUnit 5, Serenity BDD, and Cucumber, alongside Selenium WebDriver.
- Led and mentored four junior test engineers through code reviews and technical guidance, improving test framework maintainability and engineering practices.

**Senior Software Engineer**
*iTEC (6-month contract) - June 2017 - December 2017*

- Helped Raytheon transition from Waterfall to Agile delivery by introducing Scrum, iterative development, continuous integration, and DevOps practices.
- Served as DevOps architect, designing and implementing a delivery strategy encompassing CI/CD pipelines, automated testing, and infrastructure as code.
- Produced architecture and design documentation to guide DevOps implementation and align the solution with project requirements.

**Senior Software Engineer in Test**
*TEKsystems (6-month contract) - April 2016 - December 2016*

- Contributed to Comcast's customer service-activation platform, supporting development and validation of a streamlined activation experience.
- Built a Scala and Gatling API testing framework for functional and performance validation of the service-activation platform.
- Developed a UI automation framework executable from Eclipse, separating test data from test logic to simplify maintenance and updates.

**Senior Software Engineer**
*Colorado Interactive - August 2014 - April 2016*

- Designed and implemented a multi-tenant judicial case management application for Colorado district courts, combining shared functionality with tenant-specific configuration and data isolation. Redesigned Oracle schemas to enforce tenant boundaries and refactored JSF components for dynamic branding.

- Redesigned Colorado's business-registration application to streamline interactions with the Departments of Labor and Employment and Revenue and the Secretary of State.
- Provided technical leadership to five engineers through code reviews, mentoring, engineering guidance, and knowledge-sharing sessions.
- Introduced BDD using Cucumber, partnering with analysts and stakeholders to turn acceptance criteria into executable specifications and improve requirement clarity and test feedback.

**Senior Software Engineer**
*KForce (6-month contract) - January 2014 - August 2014*

- Validated an end-to-end video-on-demand ingestion pipeline, tracing content from edge services through Amazon S3 and backend microservices to verify complete, correct processing.
- Developed Ruby scripts to simulate high-volume edge-service uploads to S3, enabling production-scale ingestion testing before release.
- Validated microservice-generated JSON against expected movie schemas and data to prevent incorrect metadata from reaching the user interface.

**Senior Software Engineer**
*TEKsystems (1-year contract) - January 2013 - December 2013*

- Developed a Java application for investment portfolio reporting and backend financial-service integration using Spring, JAX-WS, XML, XSL-FO, WSDL, and XML Schema; deployed on IBM WebSphere.
- Modernized a Charles Schwab Java application by migrating WebLogic-specific services to standards-based JAX-WS and replacing legacy Ant build processes.

**Senior Software Engineer**
*TEKsystems / McKesson - January 2009 to December 2012*

- Developed contract-first SOAP services using Java, JAX-WS, WSDL, and XML Schema to integrate components of a distributed healthcare platform serving multiple clients.
- Configured ActiveMQ queues and topics for asynchronous messaging between distributed services, supporting reliable communication and scalability.
- Worked with cross-functional teams to translate ARRA regulatory requirements into application functionality.
- Owned the unit testing strategy, expanding JUnit, Mockito, and PowerMock coverage to support reliable changes and code refactoring.