These are the 3 detailed case studies related to Hertz along with a short overview of their portfolio.

Some of key folks from Creospan who have worked with Hertz include Mulu Adhana, Henok Keraga, Avinash Vellineni

Before you read them, the following info might be helpful:

- **The Hertz Rate Engine** is a sophisticated application designed to generate the best possible car rental rates. It also manages comprehensive reservation details, including car and rate availability, account promotions, location specifics, loyalty program details, and currency conversions.
- **MyHertz** serves as an internal mobile app that provides employees with up-to-date information regarding discount programs, employee and family benefits, and community updates, aimed at enhancing internal communication and employee engagement.
- **Hertz.com, Dollar.com, and Thrifty.com** are user interface-driven web applications utilized globally for making online car reservations. These platforms are crucial for maintaining customer interaction and service delivery across the Hertz Corporation's global customer base.

Case Study 1: Hertz Rate Engine

Problem Solved: Hertz needed to improve their rate engine system to generate optimal car rental rates and manage reservations effectively. The existing system required enhancement for better scalability, performance, and ease of deployment.

Solution: The consultant played a key role in migrating the Hertz Rate Engine to an AWS EKS environment, which involved designing and scripting a new CI/CD pipeline for smooth deployments across development and production environments. The pipeline integration included features like dynamic image deployment, stage locking, Teams notifications, and GitHub tagging.

Technologies and Stack Used:

- **Cloud Platform:** Amazon Web Services (AWS)
- **Containerization:** Docker, Kubernetes
- **CI/CD:** Groovy Jenkins scripts
- **Database:** Cloudant database
- **Monitoring:** Grafana (proposed for future implementation)
- **Messaging:** SQS for asynchronous communication
- **Development:** Node.js for backend services

Benefits Overview: The migration to AWS and the new pipeline significantly improved the deployment efficiency and scalability of the rate engine. The use of SQS reduced the data transfer delay between different components, enhancing the overall responsiveness of the system.

Business Operations Benefits:

- **Increased Efficiency:** The new AWS-based infrastructure allowed for more dynamic and efficient rate generation and reservation management, improving overall customer service and reducing response times for rate queries.
- **Scalability:** The cloud environment provided scalable resources, allowing Hertz to handle peak loads effectively, such as during holidays and special events, without incurring downtime or performance bottlenecks.
- **Operational Flexibility:** Automated pipelines with enhanced deployment strategies enabled quicker rollout of new features and fixes, reducing the operational overhead and minimizing human error.

Technology Benefits:

- **Modernized Infrastructure:** Transition to AWS EKS and the integration of continuous integration/continuous deployment (CI/CD) pipelines modernized the overall infrastructure, making it more robust and easier to maintain.
  Automation: Automated workflows for deployments and testing reduced the chances of errors and freed up developer time for more critical tasks.
  Interconnectivity: Implementation of SQS for messaging improved the integration between different system components, enhancing system reliability and data flow.

Case Study 2: MyHertz App

Problem Solved: Hertz required a mobile application to provide employees with access to internal information such as discount programs, benefits, and community updates.

Solution: The consultant was responsible for the design and development of the "MyHertz" app, integrating Google Firebase for real-time data and analytics. A comprehensive CI/CD pipeline was implemented for releasing the app across multiple platforms including App Center, App Store, and Google Play.

Technologies and Stack Used:

- **Mobile Development:** React Native
- **Analytics and Backend Services:** Google Firebase
- **CI/CD Tools:** Jenkins, Nexus
- **Version Control:** Git
- **Testing:** Detox for end-to-end testing

Benefits Overview: The "MyHertz" app improved internal communications and accessibility to employee benefits, boosting employee satisfaction and engagement. The automated pipeline reduced time-to-market for new app features and updates.

Business Operations Benefits:

- **Employee Engagement:** The app improved access to internal information, which enhanced employee satisfaction by keeping them informed about company benefits and updates, fostering a more engaged workforce.
- **Communication Efficiency:** Streamlined internal communications reduced the need for manual processes and meetings, saving time and increasing productivity among employees.
- **Enhanced Accessibility:** Providing mobile access to company information allowed employees to interact with the company resources on-the-go, increasing usability and engagement.

Technology Benefits:

- **Cross-Platform Compatibility:** Using React Native enabled the development of a uniform app that works across different platforms (iOS and Android), reducing development and maintenance costs.
- **Real-Time Analytics:** Integration of Google Firebase provided real-time analytics, helping Hertz to measure app performance and user engagement effectively.
- **Automated Release Process:** The CI/CD pipeline facilitated smooth and frequent updates to the app, ensuring that users always have access to the latest features and security updates.

Case Study 3: Hertz.com, Dollar.com, Thrifty.com Redesign

Problem Solved: The websites for Hertz, Dollar, and Thrifty required updates to improve user experience in car reservation processes such as booking, confirmation, modification, and cancellation.

Solution: The consultant developed front-end components and microservices to enhance user interactions on these websites. This included setting up sandbox environments for testing user story implementations and managing deployments via Jenkins and Kubernetes.

Technologies and Stack Used:

- **Frontend:** React with Hooks, JavaScript, CSS
- **Backend:** Spring Boot microservices
- **DevOps:** Docker, Kubernetes, Istio, Jenkins
- **Project Management:** Jira
- **Cloud:** AWS

Benefits for Hertz: The redesign of these websites enhanced the customer experience by streamlining the reservation process, which is critical for customer retention and satisfaction. The deployment strategies improved the robustness and reliability of the live environments.

Business Operations Benefits:

- **Customer Experience:** Improved user interface and simplified reservation processes directly contributed to an enhanced customer experience, which is crucial for customer retention and loyalty.
- **Reduced Operational Costs:** More efficient microservices architecture and streamlined deployment processes decreased the need for extensive manual testing and maintenance, leading to lower operational costs.
- **Market Responsiveness:** Faster deployment cycles enabled quicker responses to market demands and customer feedback, helping Hertz stay competitive in a fast-paced market.

Technology Benefits:

- **Responsive Design:** Using React and modern CSS practices enhanced the responsiveness and aesthetic appeal of the websites, improving user engagement.
- **Microservices Architecture:** Employing a microservices architecture allowed for more granular scaling and better isolation of services, which improved the reliability and manageability of the web platforms.
- **Enhanced Security and Compliance:** Docker and Kubernetes not only simplified deployments but also boosted security protocols and compliance with industry standards due to better environment control.

These case studies showcase the consultant's ability to deliver technical solutions that drive significant business benefits, demonstrating their role in advancing Hertz's technology landscape and operational efficiency.

For added information, you can refer to : Source 1 , Source 2

In addition to these, below are the additional inputs we have:

Creospan Consultant at Hertz – July 2020 – December 2021

Lead Developer on multiple projects within the Hertz RevLab – a product focused development space embracing pair programming, test driven development, empathy, learning, fail fast and rapid value delivery. Presented to the RevLab on topics including Kotlin, AWS Certifications, Cloud Deployment.

Projects:

- **No-Show Fees** - Designed and developed solution to process fees for customers that do not show up for reservations or cancel reservations too close to pick-up date. Java / Spring micro services hosted on AWS and integrated with legacy applications for fee settlement. The fee structure was already in place, but there were many difficulties to develop a solution including a complex query to determine who should be billed for this fee each day and an antiquated billing solution running on older IBM hardware that required a fixed-format EBCDID tile to be constructed and sent via FTP.

Worked closely with a Hertz Business Analyst and other groups at Hertz to design and build the solution. The end solution produced revenue immediately upon go-live and continues to produce millions of dollars annually.

- **Dollar.com modernization** - Developed using React and Bootstrap to a completely new design. Components are much lighter than those supporting the existing site and will likely be the base for rewriting Hertz.com and Thrifty.com in the future. Wrote close to 50% of this code changes on the

Dollar.com website prior to leaving the project. Multiple other Creospan consultants were also working on this rewrite.

- **Tourchless Rental for Insurance Replacement** - Backend design and implementation on a touchless rental solution for customers within the insurance replacement business. Worked closely with a Hertz Architect to design the overall solution. Reworked an AWS soluction for inviting new customers to the system in order to facilitate the touchless product invitation. Developed Java / Spring microservices to initiate rentals through integration with a legacy system via a bot as the customer uses a mobile application to gain access to the vehicle. Multiple other Creospan consultants worked on different parts of this project.