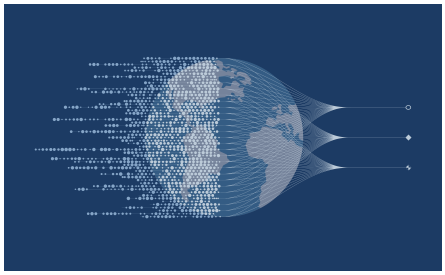

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Web Portal (SWP) and Elasticsearch Integration for Enhanced Data Access.

This paper details the integration of Elasticsearch into the Secure Web Portal (SWP), a platform that States Signatories use to access vital resources related to the Comprehensive Nuclear-Test-Ban Treaty (CTBT). The previous SWP system, which relied on a traditional relational database (Oracle), faced some limitations with performance, scalability and data access. To address these challenges, Elasticsearch, a distributed search and analytics engine, was incorporated into the SWP. This integration significantly enhances the system's ability to quickly retrieve historical data, provides a more user friendly search and visualization interface, and ensures the system can scale to handle increasing loads. The Elasticsearch integration has led to improved data availability and retrieval speed, real time dashboarding capabilities, enhanced system observability, and creates opportunities for future innovation. Future development areas include optimizing the Elasticsearch setup, expanding the use of the Experts Communication System, improving observability, integrating real time data streaming, adopting machine learning, and providing user training. This project provides a more modern and efficient way to access critical data, setting the stage for more advanced data analysis techniques.

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