vaultree Google BigQuery

FAQ

BigQuery Frequently Asked Questions

1. What is Vaultree's Data-In-Use Encryption, and how does it differ from traditional encryption methods?

Vaultree's Data-In-Use technology is a proprietary evolution and implementation of innovations related to in-use encryption algorithms such as Fully Homomorphic Encryption (FHE), which enables near real-time processing and querying of encrypted data.

2. How do BigQuery customers benefit from Vaultree's integration with Google?

By integrating with BigQuery, Vaultree brings the cutting-edge capabilities of our Data-in-Use Encryption technology directly to its users, ensuring they can leverage enhanced security and privacy features seamlessly within their existing workflows. This integration enables customers to protect their data with encryption standards that meet or exceed those of SQL and Oracle's native security features without impacting the performance or usability of BigQuery. Customers benefit from an elevated level of data protection and privacy, aligning with the top-tier security measures employed in industry-standard databases, thereby enhancing their overall data management and analysis capabilities.

3. Can you explain the performance impacts of using Vaultree with BigQuery? How does the 10-15% slowdown compare to other encryption methods regarding query execution times?

Compared to unencrypted data operations, common FHE implementations are currently about 10,000-100,000 times slower. For MPC, benchmarks for database operations are 5-10 times slower than SQL(1). By promising only marginal performance reduction, Vaultree's Data-In-Use Encryption brings the benefits of FHE to real-world applications.

4. In what way does Vaultree help BigQuery customers comply with GDPR, HIPAA and other stringent regulatory requirements?

Vaultree's Data-In-Use Encryption offers a significant advantage over traditional solutions by enabling organisations to comply with stringent regulations like GDPR and HIPAA by keeping data encrypted throughout its lifecycle. Unlike other technologies that require data decryption for searching or updating, Vaultree's persistent encryption allows for the analysis and processing of encrypted healthcare data without exposing sensitive patient information, thereby ensuring compliance with HIPAA's privacy requirements and offering a more secure alternative.

5. How does the proprietary, searchable encryption and FHE work to maintain data usability while ensuring robust security?

Proprietary, searchable encryption and Fully Homomorphic Encryption (FHE) work together in Vaultree's Data-In-Use Encryption to allow operations on encrypted data as if it were plaintext. This means users can perform searches, computations, and analyses on encrypted data without needing to decrypt it first, maintaining data usability while ensuring robust security.

6. What are the key technical advantages of using your encryption library over traditional column-level encryption methods, especially in cloud-based environments?

Key technical advantages include superior security by encrypting data in use, minimal performance impact, compliance with regulatory standards, and the ability to perform complex data analyses securely. Unlike column-level encryption, Vaultree offers a more holistic and secure approach to data encryption in cloud environments. Moreover, Vaultree's technology enables secure, complex searches directly on encrypted data, a substantial leap over traditional CLE methods.

7. How does the integration with BigQuery enhance data security against potential data breaches, and what happens in cases of unauthorised access?

The API enhances data security by ensuring data remains encrypted even during analysis. In cases of unauthorised access, attackers only encounter encrypted data, which is indecipherable without the corresponding decryption keys, significantly mitigating the risk and impact of data breaches.

8. What are the scalability and flexibility benefits of using Vaultree with BigQuery for enterprises handling large datasets?

Vaultree's efficient and scalable encryption technology offers the unique capability to secure data down to the column level, allowing enterprises to selectively encrypt only what is necessary rather than entire databases. This targeted approach ensures that organisations can manage and analyse large datasets securely without significant performance degradation. Its seamless integration with BigQuery further enhances flexible deployment and scalability, accommodating growing data needs while upholding stringent security measures.

9. How does Vaultree's encryption solution impact the operational efficiency of data management and analysis within BigQuery?

Vaultree's solution enhances operational efficiency by enabling secure data management and analysis without the typical drawbacks of encryption, such as reduced performance and limited functionality. Organisations can leverage BigQuery's full capabilities while ensuring data remains encrypted and secure.

10. What support and maintenance services does Vaultree offer for enterprises integrating your technology with BigQuery?

Vaultree offers comprehensive support and maintenance services, including integration assistance, ongoing technical support, and updates to ensure the Vaultree SDK remains compatible with BigQuery's evolving features and security.

11. How does the collaboration between Vaultree and Google BigQuery handle the management and security of large data lakes?

By integrating Vaultree's technology, data stored in data lakes within BigQuery can remain encrypted even during complex analyses and processing. This ensures that enterprises can leverage their data lakes for insightful analytics without compromising on data security or privacy. Vaultree's technology's ability to encrypt data in use, coupled with BigQuery's scalable data warehouse features, enables efficient and secure management of vast amounts of data, turning data lakes into valuable, actionable assets while adhering to compliance standards.

Contact Information

For further information, troubleshooting and signposting through Vaultree, please contact:

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