

MicroStrategy AI: Security Whitepaper

Explore practical steps to ensure data integrity
and ethical AI implementations.

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Introduction

The effective deployment of artificial intelligence (AI) in business intelligence (BI) significantly depends on the integrity of the underlying data. For AI systems driving business decisions, accuracy isn't merely beneficial; it's imperative. These systems need to be trustworthy to be of genuine utility.

MicroStrategy stands out as a reliable pillar in this context, providing business users with data that is both precise and secure. The introduction of MicroStrategy AI reinforces this commitment, offering a platform where the rigor of BI meets the innovative capabilities of AI.

Our AI solution is engineered to accurately interpret business questions presented in natural language, employ logical reasoning, and produce relevant results autonomously. This synthesis of BI's structured analysis and AI's adaptability ensures that MicroStrategy AI meets the dual needs of data integrity and flexible user engagement.

MicroStrategy AI is an evolution of our established platform, seamlessly integrating advanced AI and machine learning capabilities. It streamlines processes such as AI-driven data exploration, dashboard design automation, and the use of specialized tools like SQL generation and machine learning-enhanced visualization for data analysis. With these features, the platform facilitates more profound data insights within the familiar environment of the MicroStrategy ecosystem.

The reliability of MicroStrategy AI is anchored in the meticulous design of the MicroStrategy semantic layer and its comprehensive security framework. Auto, our AI assistant, exclusively relies on data from MicroStrategy, with all analytics executed by our established analytical engine. This ensures consistent, accurate, and secure data processing and representation, allowing businesses to make informed decisions with confidence.

MicroStrategy AI Support System

Our advanced Artificial Intelligence support system is well equipped to provide us with the following services:

Data Analysis and Prediction:

Our AI can analyze vast amounts of data at high speeds, identifying patterns and trends that may not be apparent to human analysts. This capability allows for more accurate market predictions and better investment decisions.

Algorithmic Trading:

Our AI-driven algorithms can execute trades at speeds and frequencies beyond human capabilities, optimizing trade strategies and improving returns. These algorithms can react to market changes in milliseconds, taking advantage of short-lived opportunities.

Risk Management:

Our AI tools can assess risk by analyzing historical data and current market conditions. This helps investors and traders to minimize losses and manage their portfolios more effectively by predicting potential downturns and adjusting strategies accordingly.

Personalization:

Our AI provides personalized investment advice based on an individual's financial goals, risk tolerance, and market conditions. This tailored approach can help investors make more informed decisions aligned with their specific needs.

Efficiency and Cost Reduction:

Automating processes through AI reduces the need for manual intervention, thereby cutting down on operational costs and improving efficiency. This allows firms to offer better services at lower costs.

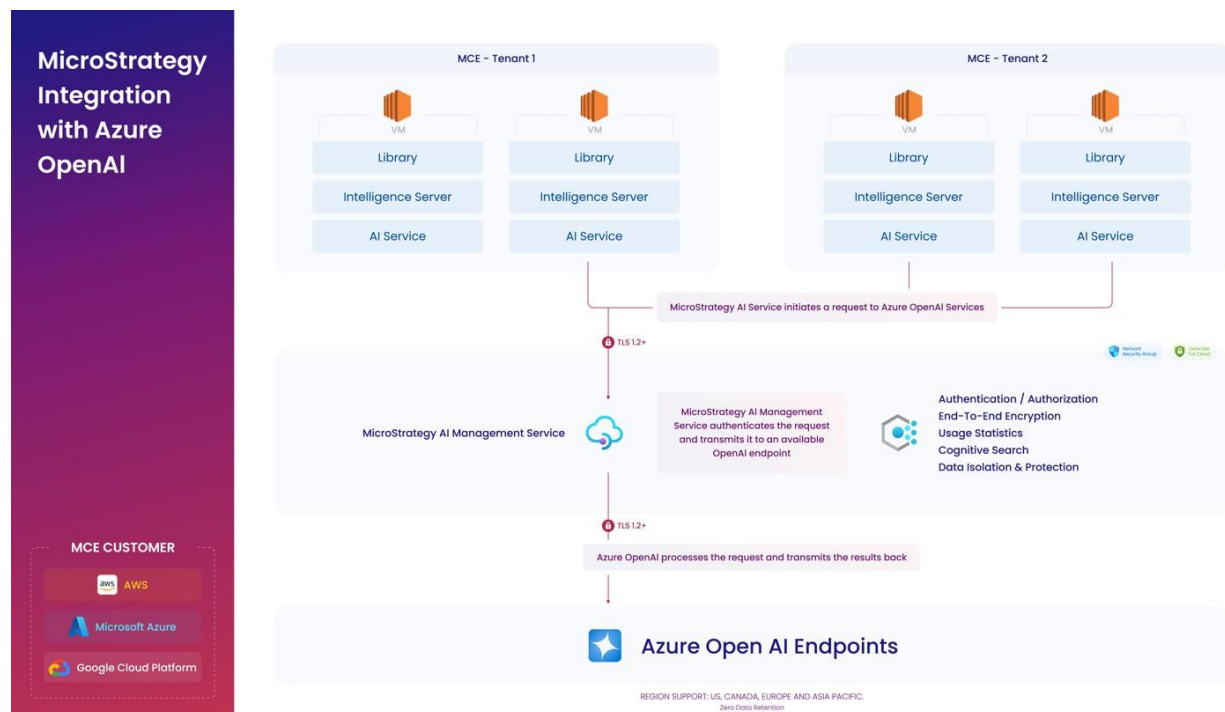
Security:

Micro Strategy AI support systems can detect unusual patterns that may indicate fraudulent activities, protecting both the platforms and their users from potential security breaches.

Sentiment Analysis:

By analyzing news, social media, and other sources, our AI support system can gauge market sentiment and predict its impact on stock prices. This enables traders to make decisions based on market mood and potential future movements ensuring they remain aligned with the investors' goals and the current market conditions.

MicroStrategy Integration with Azure OpenAI



Ensuring Data Privacy and Integrity with MicroStrategy AI

MicroStrategy AI

Ensuring data privacy and integrity when using AI for trading involves a combination of technical, procedural, and regulatory measures. Here are some of our key approaches:

Data Encryption:

Encrypt sensitive data both at rest and in transit to protect it from unauthorized access. Use strong encryption protocols such as AES-256.

Access Controls:

Implement strict access controls to ensure that only authorized personnel and systems have access to sensitive data. This includes role-based access control (RBAC) and multi-factor authentication (MFA).

Anonymization and Masking:

Anonymize or mask data to remove personally identifiable information (PII) before using it in AI models. This reduces the risk of privacy breaches if the data is compromised.

Audit Trails:

Maintain detailed audit trails of all data access and processing activities. This helps in monitoring and detecting any unauthorized or suspicious activity.

Regular Security Assessments:

Conduct regular security assessments, including penetration testing and vulnerability scanning, to identify and address potential weaknesses in the system.

Data Integrity Checks:

Use checksums, hashes, and digital signatures to ensure the integrity of data. This helps detect any unauthorized modifications to the data.

Compliance with Regulations:

Ensure compliance with relevant data protection regulations, such as GDPR, CCPA, and others. This involves implementing necessary policies and procedures to protect user data.

Data Governance Framework:

Establish a robust data governance framework that includes policies for data quality, data lifecycle management, and data stewardship.

Secure Development Practices:

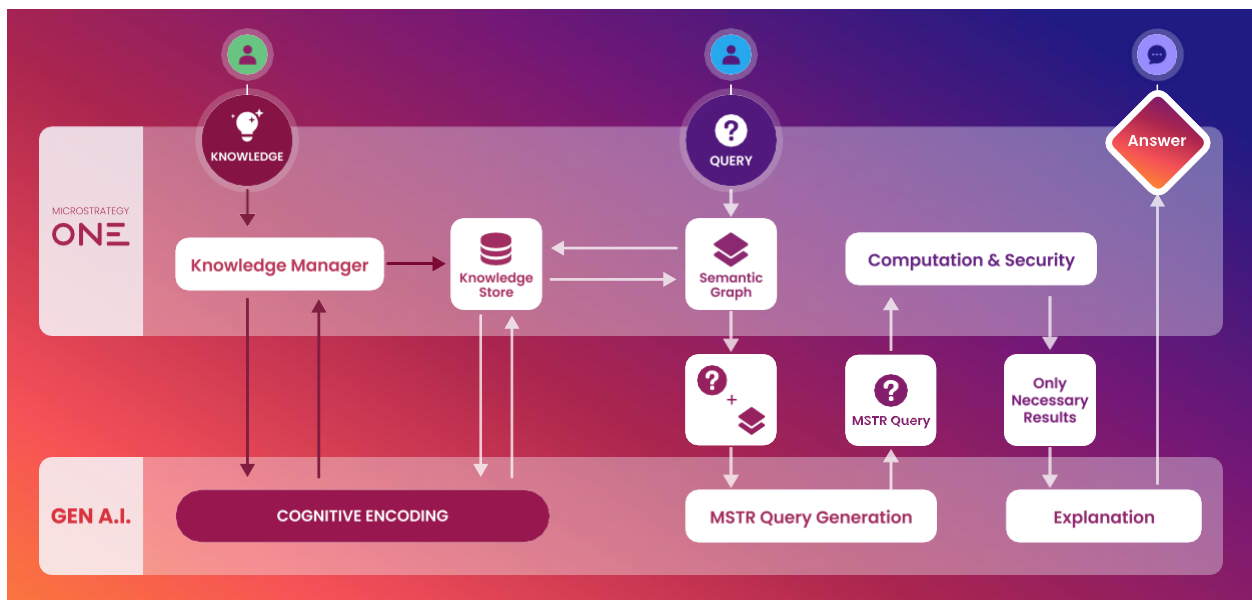
Adopt secure software development practices, including code reviews, static and dynamic analysis, and continuous integration/continuous deployment (CI/CD) pipelines with security checks.

Incident Response Plan:

Develop and maintain an incident response plan to quickly and effectively respond to any data breaches or security incidents.

MicroStrategy AI support system uses Microsoft Azure OpenAI, and all communication is strictly over secure channels with TLS 1.2 or higher. This ensures that data is always encrypted during transit, preventing unauthorized access or breaches. The AI Features work strictly within the boundaries set by Privileges, ACLs, and data security measures specified for the user in the Micro Strategy platform. Only privileged users can upload knowledge assets to augment their data. They are protected through access control, privileges, and encryption.

The only information transferred between MicroStrategy, and the Azure OpenAI LLM is the dataset's schema and minimal sample data so that the LLM has necessary context to process the user question. With the integration of the Knowledge Asset function and cognitive search, we can also include additional context to the LLM for a more precise response.



Data Retention

The Auto Answers functionality does not retain conversation histories after the active user session.

MicroStrategy Auto Bots enable users to persist their chat history and save snapshots of their data. Access to this chat history and the snapshot information is on a per-user basis. The information is not shared between users. Further, this information is stored in tenant's own storage space and is fully encrypted using AES-256 bit encryption.

MicroStrategy Platform Analytics gathers telemetry data on user interactions with Auto to empower administrators. This includes capturing the user's question, the interpretation of the question (if requested), the SQL query generated to address the question, and the MicroStrategy Template created to retrieve and present the result. Access to this data is managed by limiting the number of users accessing the Auto Adoption and Auto Question Analysis dashboards and their dependent schema objects in Platform Analytics. Platform Analytics is hosted under each customer's tenant.

Historical Data Retention

MicroStrategy AI offers robust data retention capabilities designed to meet the needs of our users while ensuring the security and privacy of their data. Each user is entitled to retain a maximum of 30 historical questions and answers. This feature allows users to access and review their previous interactions, enhancing their experience by facilitating continuity and learning from past inquiries.

Manual Deletion of Historical Data

To provide users with control over their data, MicroStrategy AI enables the manual deletion of questions and answers from past conversations. Users can remove entries they no longer need, maintaining a clean and relevant history according to their preferences.

Snapshots

In addition to historical data, users can create and save snapshots of specific questions and answers. These snapshots are stored independently of the standard history and can be used to preserve critical data points or insights. Each user can maintain up to 50 snapshots, allowing for significant flexibility in data management and retrieval.

Data Storage Locations

Text Content Storage: The text content of questions and answers are securely stored in the MicroStrategy Metadata database. This database is designed for high availability and is optimized for efficient data retrieval.

Visualization Data Storage: Data points used to visualize each answer are stored in the

MicroStrategy Storage Service. Before users can begin storing visualization data, they must configure the MicroStrategy Storage Service to ensure proper data handling and security.

The Text Content Storage and Visualization Data Storage reside inside each customer's tenant.

User Data Privacy

User-specific questions, answers, and snapshots are private and accessible only to the individual user. This strict access control is part of our commitment to user privacy and data security, ensuring that sensitive information remains confidential and protected.

This data retention policy is part of our ongoing effort to provide a transparent, secure, and user-focused experience, enabling effective and efficient use of MicroStrategy AI.

Profit Assurance With Market Compliance

In the dynamic landscape of financial trading, ensuring profitable outcomes while adhering to market compliance is of paramount importance. Our commitment to balancing these two crucial aspects underpins our strategy and operations. Here's an overview of how we strive to achieve profit assurance in full compliance with market regulations:

Profit Assurance Strategies:

1. Data-Driven Insights:

- Utilizing advanced analytics and AI-driven models to identify profitable trading opportunities.
- Continuous monitoring and adjustment of strategies based on real-time market data and performance metrics.

2. Risk Management:

- Implementing robust risk management protocols to mitigate potential losses and protect investment capital.
- Diversification of investment portfolios to spread risk across different asset classes and markets.

3. Expert Analysis:

- Leveraging the expertise of seasoned analysts and financial experts to guide

investment decisions.

- Regular reviews and updates of trading strategies to align with market trends and economic indicators.

4. Technology and Innovation:

- Employing cutting-edge trading platforms and technologies to enhance execution efficiency and accuracy.
- Continuous research and development to stay ahead of market innovations and technological advancements.

Market Compliance Measures:

1. Regulatory Adherence:

- Strict compliance with all relevant financial regulations and guidelines set by governing bodies such as the SEC, FINRA, and international counterparts.
- Regular audits and assessments to ensure all operations meet regulatory standards.

2. Transparency and Reporting:

- Providing transparent and comprehensive reporting to investors on performance, strategy adjustments, and compliance status.
- Ensuring that all trading activities are fully documented and accessible for regulatory review.

3. Ethical Practices:

- Upholding the highest standards of ethical conduct in all trading activities.
- Commitment to fair trading practices and avoiding any actions that could be perceived as market manipulation or insider trading.

4. Investor Education:

- Offering educational resources and regular updates to keep investors informed about market conditions, regulatory changes, and their potential impacts on trading strategies.

- Engaging with investors through seminars, webinars, and personalized consultations to enhance their understanding and confidence.

By integrating robust profit assurance mechanisms with unwavering market compliance, we aim to deliver sustainable and ethical returns on your investments. Our dedication to these principles not only protects your interests but also contributes to the integrity and stability of the financial markets.

Monitoring, Logging, and Auditing AI Use within MicroStrategy

MicroStrategy places a significant emphasis on monitoring, logging, and auditing the usage of AI within its platform to ensure transparency and accountability. The monitoring systems in place offer customers a comprehensive overview of their AI usage. Through a user-friendly dashboard, customers can track the number of questions they have made and gain insights into which users use them. This transparency empowers organizations to optimize their AI utilization effectively.

Logging Mechanisms

MicroStrategy has designed meticulous logging mechanisms to uphold user data privacy and security. Within the Micro Strategy platform, certain information is logged while others are intentionally left out, with the purpose of safeguarding user data and meeting data compliance laws.

Specifically, MicroStrategy's logging system captures essential data for operational purposes. One example is the number of tokens used for the questions posed by users, ensuring that this information is tracked to measure consumption and usage. Furthermore, this logged data is not used to train AI models or for other purposes that might compromise user data privacy.

This privacy-conscious strategy aligns with contemporary data protection standards and regulations, providing users with the confidence to fully engage with MicroStrategy's AI-powered tools without worrying about the security of their sensitive information.

Audit Trails

Audit trails are crucial in ensuring accountability and traceability within the Micro Strategy

platform. MicroStrategy has implemented a robust system in Platform Analytics that allows customers to perform audit trails effectively. One key element of this system is preserving a unique question ID, which enables tracking of actual usage associated with individual users. Importantly, Micro Strategy's approach prioritizes user privacy by not recording the outcomes generated. Instead, by focusing on the question ID, MicroStrategy can precisely determine which user initiated a query or utilized specific AI features. This approach balances accountability and data privacy, ensuring user actions can be traced and monitored.

Investment Assurance and Profit Guarantee Measures

We are pleased to present our comprehensive approach to investment assurance and profit guarantee, aligned with stringent market compliance. Our commitment to these principles ensures that your investments are managed with the utmost care, transparency, and ethical standards. Below, we outline the key components of our strategy to ensuring our clients of optimum profit of every investment with us.

Investment Measures

1. Comprehensive Risk Management:

- **Diversification:** We diversify portfolios across various asset classes and geographical regions to spread risk and optimize returns.
- **Hedging Techniques:** Employing sophisticated hedging strategies to protect against market volatility and potential losses.
- **Regular Stress Testing:** Conducting stress tests to assess how portfolios perform under extreme market conditions, ensuring preparedness for adverse scenarios.

2. Robust Research and Analysis:

- **Market Research:** Our team continuously monitors global markets, economic indicators, and geopolitical events to inform investment decisions.
- **Advanced Analytics:** Utilizing state-of-the-art analytics and AI to uncover market trends and identify lucrative investment opportunities.
- **Expert Insights:** Regular input from seasoned financial analysts and industry experts

to refine and adapt our strategies.

3. Strategic Asset Allocation:

- **Customized Portfolios:** Tailoring investment portfolios to match individual risk tolerance, time horizon, and financial goals.
- **Dynamic Rebalancing:** Periodic rebalancing of portfolios to maintain the desired asset allocation and optimize performance.

Profit Guarantee Measures

1. Performance Tracking:

- **Benchmarking:** Comparing portfolio performance against relevant benchmarks to ensure competitive returns.
- **Real-Time Monitoring:** Continuous monitoring of investments to swiftly capitalize on opportunities and address any underperformance.

2. Incentive Alignment:

- **Performance-Based Fees:** Aligning our compensation with your success through performance-based fee structures that emphasize profitability.
- **Investor Guarantees:** Offering profit guarantees under certain conditions, ensuring a minimum return on your investment within a specified period.

3. Proactive Market Adaptation:

- **Adaptive Strategies:** Regularly updating investment strategies to reflect changing market conditions and emerging trends.
- **Innovation Integration:** Incorporating innovative financial instruments and technologies to enhance portfolio performance.

Market Compliance Framework:

1. Regulatory Adherence:

- **Compliance Programs:** Implementing comprehensive compliance programs to ensure adherence to all relevant regulations, including those set by the SEC, FINRA, and other international regulatory bodies.

- **Regular Audits:** Conducting regular internal and external audits to verify compliance with legal and regulatory standards.

2. Transparency and Accountability:

- **Clear Reporting:** Providing transparent, detailed reports on investment performance, strategy adjustments, and compliance activities.
- **Open Communication:** Maintaining open lines of communication with investors to address any concerns and provide updates on market conditions and portfolio status.

3. Ethical Standards:

- **Code of Conduct:** Upholding a strict code of conduct that emphasizes ethical behavior, fair trading practices, and the avoidance of conflicts of interest.
- **Investor Protection:** Ensuring all trading activities are conducted in a manner that protects investor interests and promotes market integrity.

4. Education and Engagement:

- **Investor Resources:** Offering educational materials and regular updates to keep investors informed about their investments, market developments, and regulatory changes.
- **Interactive Sessions:** Hosting seminars, webinars, and Q&A sessions to engage with investors and enhance their understanding of our strategies and market conditions.

Our approach combines rigorous investment assurance with a commitment to profit guarantee, all within the framework of strict market compliance. We believe this holistic strategy not only protects your investments but also fosters long-term growth and stability.

As we continue to innovate and expand our offerings, the safety and security of user data remain paramount. The introduction of the MicroStrategy AI capabilities, including the notable Auto feature, has been carefully architected to seamlessly integrate with the comprehensive security model of the established Micro Strategy platform. This ensures not only consistency in data access but also steadfast adherence to stringent security protocols.

Conclusion

Our investment professionals are highly experienced and possess a deep understanding of the financial markets. They are dedicated to identifying the best opportunities and making informed decisions to enhance your portfolio's growth. We remain committed to delivering exceptional service and performance, and we are confident that our approach will continue to serve your best interests. We employ comprehensive risk management strategies to minimize potential risks and protect your assets. Our team continuously monitors market conditions and adjusts our investment strategies accordingly to ensure optimal performance and security.

In summary, MicroStrategy adheres to all regulatory requirements and industry best practices. We conduct our business with the highest ethical standards, ensuring that your investments are managed with integrity and accountability. We recognize that each client has unique financial goals and risk tolerance. Our approach is tailored to meet your specific needs, ensuring that your investment strategy aligns with your objectives and timeline.

Additional Information

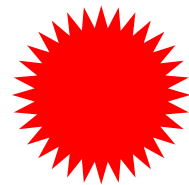
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Sign Up here <https://www.microstrategyassets.com> OR www.tradingsstrategy.com



A red circular stamp with the words "MICRO" at the top and "STRATEGY" at the bottom. Inside the stamp, there are two dotted lines labeled "Date" and "Sign". A signature is written over the "Sign" line.

Michael J. Saylor
[CEO]



Investor

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