

AI-Powered Data Center Transformation in Financial Services

Enhancing AI Data Center Network Testing

Customer Challenge

A leading global financial institution sought to revolutionize its data center operations by leveraging AI-driven cloud computing and automated network testing. With digital transformation accelerating in the banking sector, the firm needed a robust, high-performance AI data center capable of processing vast amounts of real-time financial transactions, fraud detection algorithms, and regulatory compliance models.

The financial institution encountered multiple challenges while modernizing its AI-powered data center:

- **AI Workload Complexity and Ultra-High Performance**
 - With AI-driven trading models, fraud detection, and risk analysis requiring high-speed data processing, ensuring network reliability and low-latency computing was critical
 - Traditional testing frameworks were insufficient to replicate real-world AI workloads and validate their performance
- **Scaling AI Infrastructure for Banking Applications**
 - As the institution expanded AI-powered services, network congestion and bottlenecks emerged, impacting real-time financial transactions and customer experiences
 - The existing network validation tools could not scale to support high-density AI data processing
- **Cybersecurity and Compliance Challenges**
 - Financial institutions face strict regulatory requirements for data security and network resilience against cyber threats
 - Testing for resilience under cyberattack scenarios and ensuring continuous regulatory compliance required a sophisticated validation framework
- **Manual Testing Limitations**
 - Traditional testing relied on manual processes, extending testing cycles and slowing down deployment of new AI-powered banking services
 - A lack of automated network validation tools hindered the ability to proactively optimize the AI data center efficiency and reliability
- **End-to-End Observability and Performance Metrics**
 - The financial institution needed real-time visibility into network functions and AI-driven applications to correlate system performance with business outcomes

Highlights

A global financial institution aimed to transform its data center using AI and automation to handle increasing digital demands.

The Solution

Facing challenges in integrating AI and ensuring performance, they leveraged VIAVI TestCenter to validate and optimize their AI-driven infrastructure, improve network efficiency, automate testing, and maintain stringent security and compliance.

The Solution

The institution required a cutting-edge test and assurance solution to validate, optimize, and automate testing for their AI-powered financial data center.

They leveraged VIAVI TestCenter in the following ways:

- **High-Performance AI Workload Testing**

- Emulated real-world AI workloads to test the impact on network performance, helping the institution optimize its AI data processing pipeline
- Provided low-latency network validation for AI-driven trading algorithms, risk assessments, and fraud detection systems

- **Scalable AI Data Center Validation**

- Validated 400G and 800G network architectures to ensure seamless AI workload distribution across the financial institution's global data centers
- Supported high-density traffic emulation to replicate real-time transaction volumes in peak market conditions

- **Automated Network Testing and Optimization**

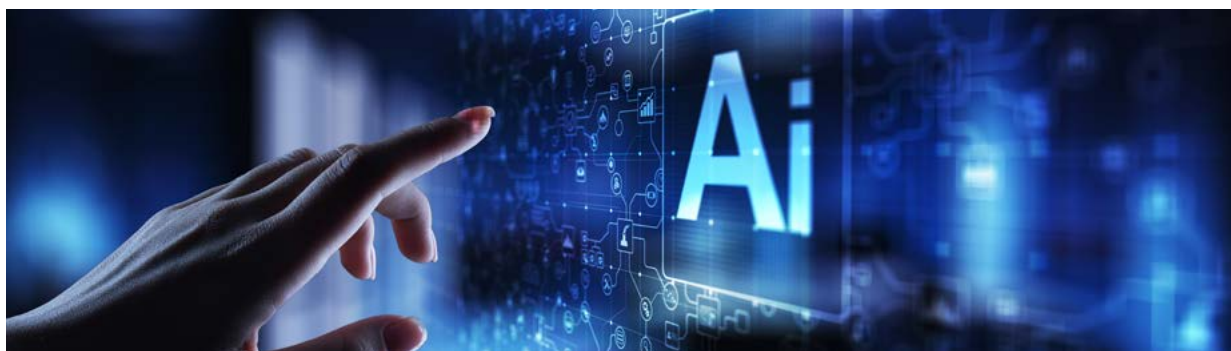
- Reduced manual testing efforts by implementing AI-driven automation to accelerate network validation cycles by 50%
- Enabled continuous testing across development and production environments to ensure stable AI application performance

- **Advanced Network Analytics for End-to-End Observability**

- VIAVI's integrated analytics platform provided real-time insights into network behavior, transaction processing speed, and AI-driven application performance
- Helped the institution identify root causes of latency issues, optimize routing, and improve overall system efficiency

- **Regulatory Compliance**

- VIAVI's network resilience testing helped the institution validate compliance with financial regulations such as PCI DSS, GDPR, and FFIEC standards





Implementation Strategy

VIAVI TestCenter was deployed in a structured three-phase rollout to ensure seamless integration with the financial institution's AI-powered data center:

- **Assessment and Planning**

- VIAVI engineers worked closely with the institution's network and AI teams to assess current workflows and define key performance metrics.
- Custom test cases were developed to validate AI network workload efficiency, 400G network infrastructure, and real-time transaction handling

- **Deployment and Integration**

- The VIAVI solution was integrated into the AI data center, ensuring full compatibility with the bank's existing AI and cloud-native infrastructure.
- Automated CI/CD testing pipelines were established to streamline validation for new AI models and financial applications

- **Optimization and Training**

- VIAVI provided comprehensive training to the bank's network teams to maximize the use of automated AI workload testing.
- Continuous network performance and optimization services ensured the AI data center met evolving demands and compliance standards



Results: Transformational Impact

The deployment of VIAVI TestCenter delivered significant improvements in AI data center performance, security, and efficiency:

- **Accelerated AI Application Deployment**

- Automated testing reduced validation cycles by 50%, enabling faster deployment of AI-driven financial services

- **Optimized Performance and Reliability**

- Real-time network validation reduced latency issues by 40%, ensuring faster transaction processing and enhanced customer experiences

- **Future-Ready AI Infrastructure**

- Validated next-generation AI workloads and high-speed network architectures, ensuring scalability for future financial AI innovations

- **Operational Efficiency Gains**

- Automated workflows freed up 25% of IT resources, allowing the institution to focus on AI-driven innovation



Conclusion

This success story highlights VIAVI's role in enabling AI-driven financial services by addressing performance, scalability, security, and compliance challenges with cutting-edge automation and AI workload validation. The result: breakthrough efficiencies in the customer's AI data center.

With AI-powered banking innovations on the rise, VIAVI continues lead in AI data center testing, performance validation, and cybersecurity assurance, empowering financial institutions to deliver secure, high-speed, and intelligent financial services to customers worldwide.



Looking Ahead

Expanding AI-Driven Innovation

Following this success, the financial institution is expanding AI-powered testing solutions across additional data centers worldwide and will rely on VIAVI TestCenter AI workload validation for a successful expansion.

By choosing VIAVI as their strategic partner, this institution is now well-positioned to lead the financial industry's AI transformation—delivering secure, scalable, and high-performance AI-driven banking services in an evolving digital landscape.



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