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eBook

GenAI Over Global Networks

A Practical Guide to Scaling, Securing and Succeeding

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Executive Summary

Dear Fellow AI Travelers,

In today's rapidly evolving digital landscape, AI technologies present vast opportunities and complex challenges for businesses. The adoption of GenAI applications will dramatically change everything from business processes to business models to impact and results.

Renowned author and technology business strategist Geoffrey Moore outlines a three-phase model for GenAI adoption in enterprises. The three phases that Moore defines are shown here:

And while most organizations are still in phase 1 and only beginning to explore phases 2 and 3 of Moore's adoption model, they are already beginning to see hints of the growing networking, security and observability challenges associated with this adoption. The good news is that leaves them a window to prepare for this growth and change. The remainder of this e-book dives deeper into Moore's model and the associated networking, security and observability challenges driven by GenAI adoption. Finally and briefly, the appendix of the paper outlines the Aryaka Unified SASE as a Service offering and its applicability to these challenges.

Wherever you are on your GenAI adoption journey, the Aryaka team wishes you success and learning and is here to help you navigate the challenges and achieve your goals.

Team Aryaka

Geoffrey Moore's AI Adoption Model

Moore's model[1] guides executives in planning and executing their AI initiatives to achieve real ROI.

Here's a detailed overview of each phase:

Phase One: Optimize Your Operating Model

In the initial phase, the focus is on streamlining and automating routine business processes. Every organization has "stupid stuff"—low-value-adding tasks that hinder efficiency. Robotic Process Automation (RPA) can address these routine tasks, while Generative AI (GenAI) expands capabilities to include creating situation-specific content, such as answering FAQs, nudging prospects, or checking in on at-risk users. By expediting this kind of work, companies can enhance productivity and free up human resources for more strategic tasks. This phase involves minimal risk and generates modest ROI by improving operational efficiency without requiring substantial changes to the existing infrastructure.

Phase Two: Upgrade Your Infrastructure Model

As businesses move deeper into AI, leveraging out-of-the-box GenAI solutions from providers like Microsoft, Google, or Amazon is just the beginning. To fully capitalize on AI's potential, companies need to integrate Retrieval-Augmented Generation (RAG). RAG optimizes AI outputs by referencing authoritative internal and external knowledge bases, enhancing the relevance and accuracy of the responses generated by AI. This phase necessitates significant upgrades to IT infrastructure, including robust API management, advanced data integration capabilities, and the implementation of comprehensive process integrity measures. The goal is to ensure seamless coordination between AI systems and the existing IT environment, capturing reusable knowledge and driving greater business value.

Phase Three: Revisit Your Business Model

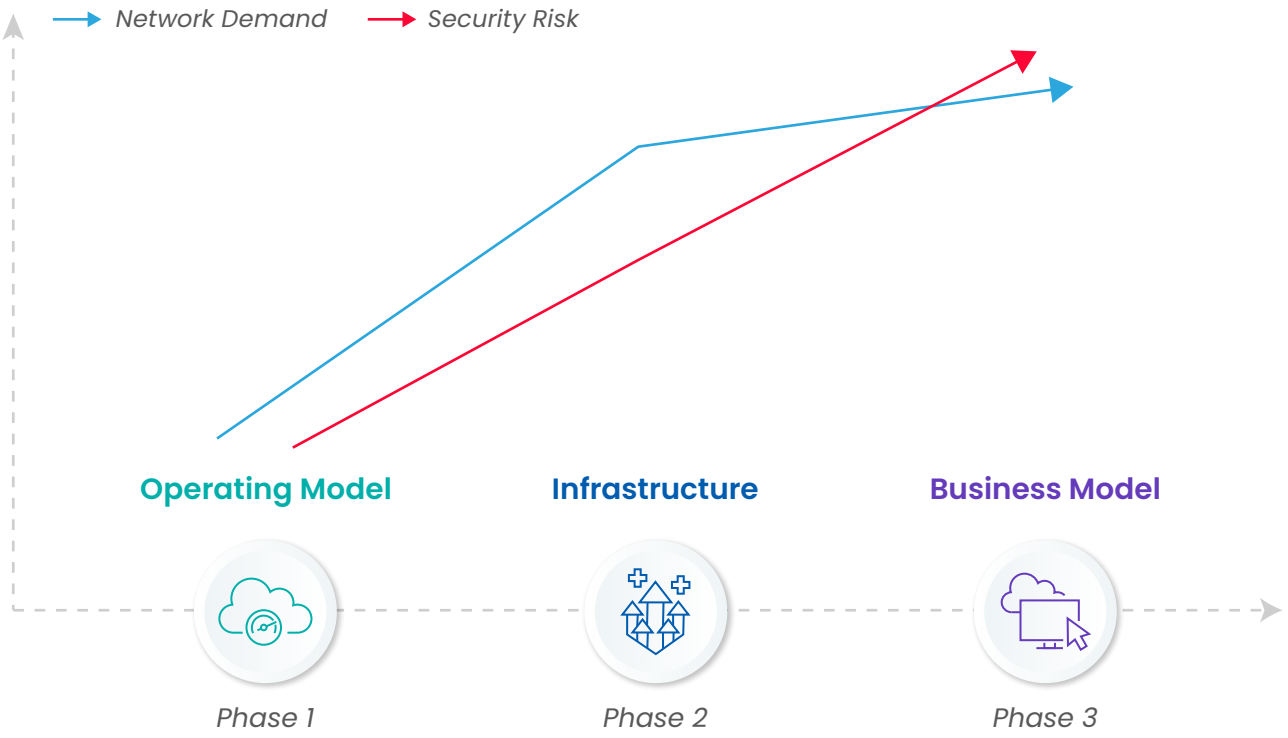
AI's full potential is realized when it fundamentally transforms business operations, creating new value propositions and disrupting traditional models. In this phase, companies must reassess and adapt their business models to the new realities introduced by AI. For example, consultancies might need to reengineer their billable hour models to reflect AI-driven efficiencies, financial services firms could overhaul their transaction fee structures to account for automated processes, and search engines may shift away from traditional sponsored ads to more innovative revenue models. This phase involves high complexity and significant change, but it offers substantial opportunities for innovation and competitive advantage. Businesses must be agile and forward-thinking to successfully navigate this transformation.

Geoffrey Moore's model provides a strategic roadmap for enterprises to navigate the complexities of AI adoption. By understanding and planning for these phases, companies can systematically optimize their operations, upgrade their infrastructure, and ultimately transform their business models to thrive in an AI-driven future.

[1] *Source: GenAI – A Journey in Three Phases*

Increasing Demands & Risks

As organizations adopt GenAI applications and move through the 3 adoption stages, they face changing and growing networking, security and observability challenges. As shown below, early on networking demand begins to grow, while security risk remains relativelty low.



As organizations move through the second and third phases of adoption, where they are making fundamental changes to their processes, infrastructure and even business models, network demand will continue to grow, but security risk will skyrocket. At the same time, the opportunity to leverage observability to manage risk and drive insight also grows. Let's take a detailed look at the networking demands, security risks and observability challenges at each of these three adoption phases.

Phase One: Optimize Your Operating Model

In this initial phase, businesses focus on removing inefficiencies and automating routine tasks. AI, particularly GenAI, can enhance Robotic Process Automation (RPA) by handling situation-specific tasks like answering FAQs, nudging prospects, or checking in on users at risk of churning. This phase involves low risk and generates modest ROI by expediting tasks without significant overhauls.

Networking Needs

During Phase One, networking requirements are relatively straightforward. Businesses primarily need to ensure that their current network infrastructure can handle the additional traffic generated by AI applications without significant latency or downtime.

- **Optimization:** Techniques including traffic shaping, protocol optimization, and compression technologies, help businesses maximize their existing network bandwidth, ensuring smooth AI application operations.
- **Data De-duplication:** De-duplication technology reduces redundant data transmissions, conserving bandwidth and improving data transfer speeds.

Security Needs

Security concerns in Phase One revolve around protecting the new AI applications and ensuring they do not introduce vulnerabilities into the existing network.

- **Access Control:** Basic access control ensures only the correct users have access to new GenAI applications and models.
- **Basic Threat Protection:** Threat detection to identify and mitigate common threats, ensuring that the initial AI applications are secure from basic cyber threats.

Observability Needs

Observability in Phase One focuses on gaining insights into AI application performance and usage patterns to optimize operations and identify areas for improvement.

- **Usage Pattern Tracking:** Monitor which AI tools are being used, providing insights into their popularity and effectiveness.
- **Performance Monitoring:** Continuous monitoring of AI application performance helps detect and resolve issues promptly.

Phase Two: Upgrade Your Infrastructure Model

As companies delve deeper into AI, leveraging out-of-the-box GenAI from major providers like Microsoft, Google, or Amazon is just the beginning. To maximize AI's benefits, businesses will need to integrate Retrieval-Augmented Generation (RAG) to enhance AI outputs with authoritative internal and external knowledge bases. This requires robust infrastructure to coordinate APIs, maintain process integrity, and capture reusable knowledge. Aryaka's Unified Unified SASE as a Service solution is crucial in this phase.

Networking Needs

Phase Two involves significant upgrades to the networking infrastructure to support the more complex AI integrations and higher data transfer requirements.

- **Global Connectivity:** Robust global connectivity ensures consistent performance across different regions, supporting seamless data transfer critical for businesses operating on a global scale.
- **Intelligent Queuing:** Implementing intelligent queuing mechanisms ensures dedicated bandwidth for AI data transfer, preventing network overload and maintaining operational efficiency.
- **Scalability:** Scaling with the growing demands of AI applications, ensuring that businesses can handle increased data volumes without performance degradation.

Security Needs

As AI integrations become more complex, the security requirements also intensify, focusing on protecting the expanded attack surface and ensuring data integrity.

- **Advanced Threat Protection:** Leveraging AI and machine learning to provide real-time threat detection and response, securing AI infrastructure from sophisticated cyber attacks.
- **Data Encryption:** Ensuring that data in transit is encrypted from end to end to protect against unauthorized access and breaches.

Observability Needs

In Phase Two, observability needs expand to include detailed monitoring of the integrated AI systems and their interactions with various data sources.

- **User Behavior Analysis:** Analyzing user interactions with AI applications, providing insights to tailor offerings to meet user needs better.
- **Resource Allocation Optimization:** Detailed observability helps identify underutilized resources, allowing for efficient reallocation to areas of higher demand.
- **Comprehensive Monitoring:** Providing real-time insights into network performance, application usage, and security incidents to maintain optimal performance and security.

Phase Three: Revisit Your Business Model

In the final phase, AI fundamentally transforms business operations, creating new value propositions and disrupting traditional models. Companies must adapt to these changes, whether it's reengineering billable hour models in consultancies or transaction fee models in financial services. Aryaka's comprehensive approach ensures businesses can navigate these disruptions with secure, performant, and insightful AI applications.

Networking Needs

Phase Three requires a highly adaptive and scalable networking infrastructure to support dynamic business models and real-time AI-driven processes.

- **Scalable Network Infrastructure:** Ensure that network infrastructure can dynamically adjust to changing business needs and AI application demands.
- **Optimized Traffic Management:** Continuous optimization of traffic routing and bandwidth allocation ensures optimal performance of AI-driven business processes.
- **High-Performance Connectivity:** Ensuring high-speed, reliable connections to support real-time data processing and AI applications that drive new business models.

Security Needs

Security in Phase Three must address advanced threats and ensure compliance with evolving regulations as AI applications become deeply integrated into core business operations.

- **Comprehensive Security Framework:** A holistic security approach, including advanced threat protection, encryption, data and knowledge leakage prevention and LLM specific threat detection and to safeguard AI-driven business models.
- **Regulatory Compliance:** Ensure compliance with data protection regulations, providing clear audit trails and secure data handling practices.
- **Proactive Threat Management:** Continuous monitoring and proactive threat management to address evolving security challenges and protect critical business operations.

Observability Needs

Advanced observability capabilities are crucial in Phase Three to manage the complexity of AI-driven business models and ensure continuous improvement.

- **Predictive Maintenance:** Monitoring AI application health to predict and prevent potential issues before they impact users, ensuring seamless operations.
- **Data-Driven Decision Making:** Providing the data and insights needed to understand the performance and impact of AI applications, enabling better decision-making and continuous optimization.
- **Advanced Analytics:** Leveraging advanced analytics to gain deeper insights into AI application performance and user behavior, driving ongoing improvements and innovation.

Conclusion

At Aryaka, we see our role in the AI landscape as enabling companies to unlock, secure, and understand the usage and benefits of AI. Our Unified SASE as a Service offering is designed to provide the comprehensive networking, security, and observability necessary to support businesses through all three phases of AI adoption.

The future and success of AI across enterprise networks demand the implementation of a Unified Unified SASE as a Service as a service solution. Aryaka's approach ensures businesses have the bandwidth, security, and insights needed to support their AI initiatives at every stage. By providing robust networking, advanced security measures, and detailed observability, Aryaka empowers businesses to realize the full potential of AI, enhancing operational efficiency and maintaining a competitive edge in the digital age. With Aryaka's Unified Unified SASE as a Service solution, organizations can protect their AI investments and ensure their AI applications remain secure, performant, and valuable over time.

Aryaka Solution Overview for GenAI

Aryaka's Unified Unified SASE as a Service as a Service offering integrates networking, security, and observability into a single, cohesive solution designed to meet the evolving needs of businesses across all three phases of AI adoption.

The Aryaka AI>™ Initiative extends the Aryaka Unified SASE as a Service offering to meet the challenges and risks of this adoption journey.

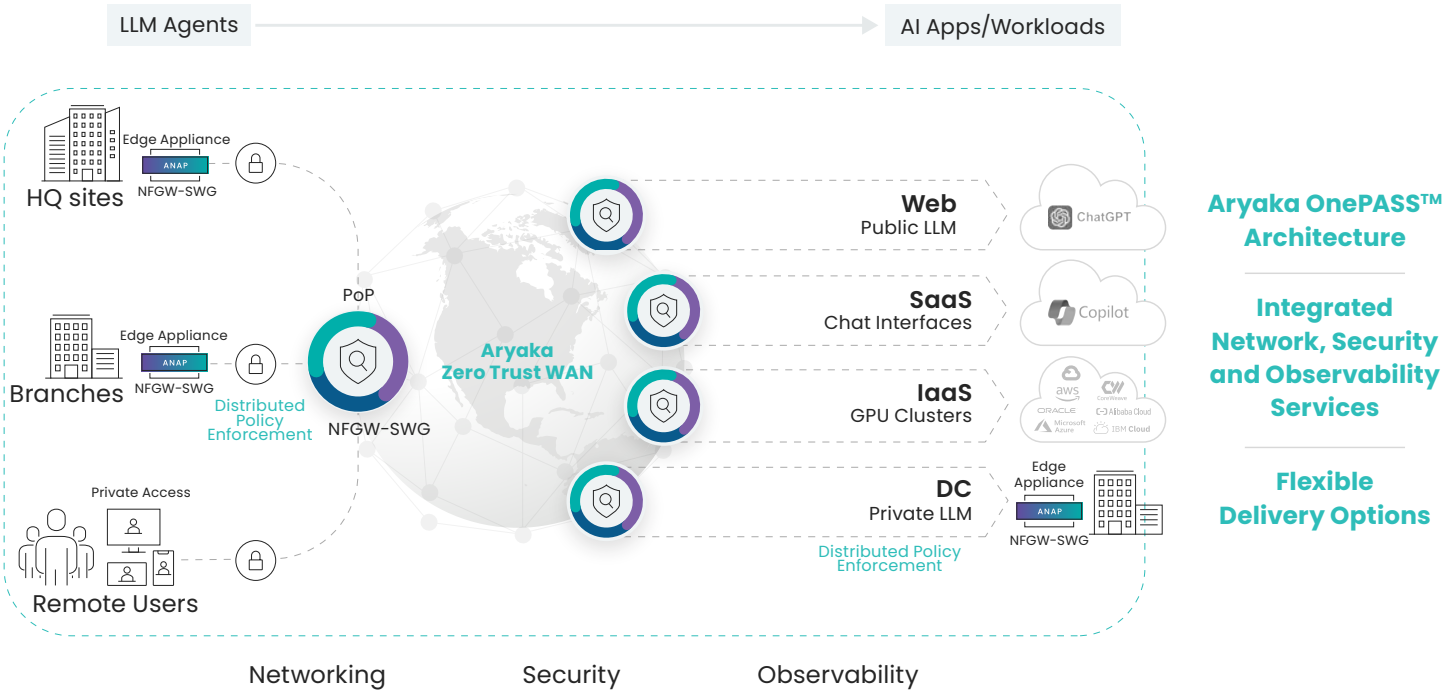
aryaka ai> initiative™

Here's an overview of how Aryaka's solution addresses these needs:

Networking: Aryaka provides global connectivity, traffic and data compression, TCP Optimization, data de-duplication, intelligent queuing, and scalable infrastructure to support the high bandwidth and low latency requirements of AI applications. This ensures seamless data transfer and optimal performance across different regions and scales.

Security: Aryaka's comprehensive security framework includes access control advanced threat detection, supply chain security, data encryption, and knowledge leakage prevention (KLP). This holistic approach protects AI infrastructure and applications from various cyber threats and ensures compliance with data protection regulations.

Observability: Aryaka offers detailed observability tools for usage pattern tracking, performance monitoring, user behavior analysis, resource allocation optimization, and predictive maintenance. These tools provide real-time insights into network performance, application usage, and security incidents, enabling businesses to optimize their AI deployments and make data-driven decisions.



Aryaka OnePASS™ Architecture

Integrated Network, Security and Observability Services

Flexible Delivery Options

About Aryaka

Aryaka is the leader and first to deliver Unified SASE as a Service, the only SASE solution designed and built to deliver performance, agility, simplicity and security without tradeoffs. Aryaka meets customers where they are on their unique SASE journeys, enabling them to seamlessly modernize, optimize and transform their networking and security environments. Aryaka's flexible delivery options empower enterprises to choose their preferred approach for implementation and management. Hundreds of global enterprises, including several in the Fortune 100, depend on Aryaka for cloud-based software-defined networking and security services. For more on Aryaka, please visit www.aryaka.com.

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