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Scaling AI in Finance by Aligning Data, Cloud, and Connectivity

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Boosting AI impact in finance through network and data alignment

No industry is more adept at implementing new technology than financial services. From the ATM to wireless payments, this sector constantly innovates to target internal efficiencies and better customer experiences. Now, with the advent of AI, it faces another modernization challenge.

Financial organizations are embracing AI at breakneck speed, with nearly all having already adopted it in some manner and 52% already using generative AI, despite it being a few years old.[1]

This is just the beginning. AI usage will continue to evolve, expand, and prove its worth to financial organizations. The U.S. Treasury Department[2] says that AI is sweeping financial firms in areas including compliance management, internal operations, underwriting, customer service, treasury management and product development and marketing.

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Infrastructure is a critical part of the equation for successful AI adoption, not just in finance but everywhere. High-performance networking in particular is key, explains Kate Johnson, president and CEO at Lumen.

"AI needs data, data needs data centers and data centers need to be connected. And that's what we do," she explains. "And right now we are massively expanding our network and the internet at large to build a backbone for the AI economy. Yesterday's network doesn't serve the AI needs of tomorrow."

In this playbook, IT decision makers in financial organizations will learn how robust data and network strategies are the foundation for more effective AI — and other future tech — initiatives. It also explores some of the objections to infrastructural investment in AI, including enterprises' fear of the potential downtime involved in upgrading network functionality.

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AI in the financial services industry

AI is reshaping the financial industry[3] with its promise to drive new efficiencies into the business.

A range of use cases: Current state

Machine learning algorithms excel at spotting anomalies in data, ideal for an industry that prides itself on managing risk. This manifests itself in cybersecurity applications, where AI can help detect and prevent financial fraud. Additionally, the growing issue of compliance risk can be tackled by AI spotting activities in transactions or in the handling of sensitive data that might violate regulatory guidelines.

Perhaps the most visible benefit lies in an improved customer experience (CX). AI-enhanced CX enables financial organizations to operate in a more customer-friendly way through applications such as AI-powered credit scoring and loan underwriting to speed up processes and increase convenience. That's a powerful tool in a sector where customer loyalty is a valuable commodity.

A range of use cases: Future state

As financial services organizations become more comfortable with AI, use cases will likely expand and become more impactful.

For example, traditional robo-advisors will evolve into more personalized financial guides, enhanced by CX automation. Eventually, they might become fully autonomous financial agents that balance portfolios and adjust automatically to major lifetime events.

Generative AI tools shine for applications like chatbots, explains Roji Oommen, Director of Strategic Engagement at Lumen.

> **“These use cases promise to reduce call handle time, improve customer satisfaction, and scale service quality without linear headcount growth.”**
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> — **Roji Oommen**
> Director of Strategic Engagement, Lumen

“Generative AI chat tools are much more responsive and flexible than traditional approaches and can be grounded in firm-specific knowledge,” he says. “Applications span from call centers to internal help desks to retail-facing use cases, like wealth management and digital onboarding—or even as an internal expert that can help find resources or knowledge within the firm for employees. These use cases promise to reduce call handle time, improve customer satisfaction, and scale service quality without linear headcount growth.”

Chandan Singh, Chief Architect and Head of AI at Webster Bank, sees plenty of other opportunities for generative AI in banking.

“The finance sector handles a lot of document processing and interpretation, be it financial contracts or product documents or policies and procedures in the compliance sector,” he says. “Those kind of processes are very ripe to be handled by Gen AI.”

The opportunity cost of inaction

To fully take advantage of opportunities like these, financial organizations must align their front-end AI activity to their back-end strategies, building a technology platform flexible and powerful enough to scale with their ambitions.

Taking a strategic approach to AI today sets the foundation for future success—especially as AI use cases become essential to business operations and network demands grow. Organizations that proactively embrace AI are already seeing the benefits: according to Boston Consulting Group, those leading in AI adoption have achieved 1.5x higher revenue growth, 1.6x greater shareholder returns, and 1.4x higher returns on invested capital over a three-year period.[4]

The data-related challenges of AI implementation

AI applications live and die by data inputs. When preparing data to meet your AI needs, consider these three factors:

Data quality: To reflect reality, data must be timely, accurate, complete and consistent. However, financial institutions struggle with fragmented data structures featuring incomplete duplicates in varying formats.

Rigid infrastructure: AI applications don't just need quality data. They need lots of it — quickly. That takes network infrastructure that can move it at high speeds. Financial institutions that haven't invested heavily enough in it risk bottlenecks that choke off their AI applications.

Compliance: In a heavily regulated sector, financial organizations must be careful how they use AI algorithms and the data that powers them. AI strategists in this industry must always have one eye on compliance.

How to enable AI with an AI-ready network

A cohesive AI strategy needs three major components, which financial institutions can view as an equation: **AI strategy = data management strategy + cloud and datacenter strategy + network strategy.**

Let's take a deep dive into the three parts of that equation:

1 Data management strategy: What you're working with

Looking after your data properly is a vital part of your compliance risk management process. Data governance policies must satisfy regulations ranging from FINTRAC and Basel III through to privacy-oriented regulations such as the EU's GDPR.

Proper data governance policies will help to make your data use in AI models regulatory compliant. That's especially important given the 'black box' nature of many AI outputs.

Identify datasets that are crucial for AI-driven models in your chosen use cases, segmenting them by risk class, so you can apply the appropriate management policies.

2 Cloud and datacenter strategy: Where your processing occurs

Financial organizations increasingly process data in many geographically diverse locations. Data might be trained in the cloud but used for inference on your own premises, or even at the edge, perhaps in your branches.

Processing locations often need to exchange data in large volumes, requiring a high-performance, low-latency connectivity fabric. They need computing infrastructure that can scale up and down at will to handle volatile workloads, and tight storage integration to store and retrieve data quickly. Cloud service providers are adept at this scaling, which is one reason why they are so popular for training AI data.

Financial institutions require a minimum performance level for AI traffic, perhaps prioritizing it over other types of data. Administrators should be able to manage AI data connections via easily accessible and flexible APIs, whether in the cloud, on their own premises, or in hybrid configuration. These should enable actions including dynamic provisioning, telemetry-driven adjustments and rapid scaling in line with computing needs.

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3 Network strategy: How your data gets where it needs to go

The network is the arterial system for the data that supports your AI initiative. It is the linchpin of digital transformation. Yet approximately 86%[5] of CIOs don't believe their network is ready for AI.

While data is an important part of a financial organizations' AI strategy, companies often overlook the network, warns Singh.

"When somebody's starting on a AI journey they're not thinking 'network first', they're thinking data first," he points out. "As they mature, they will soon realize that the network will become their biggest bottleneck."

Many networks were designed when AI wasn't a factor. For example, some network firewalls ignore data integrity checking in transit, creating a risk of inaccurate data that could derail AI. Others can't handle the data volumes that AI requires.

Bringing the three parts of the equation together

Oommen warns that the challenges associated with tackling the three parts of this equation are just as much organizational as technical.

“In most large firms, these foundational towers are owned by distinct teams: data engineering, infrastructure/ compute, network architecture and operations,” he points out. “While good IT leadership ensures they’re working from a cohesive strategy, the reality is that each group has its own priorities, timelines and budget pressures. While this worked well (more or less) across traditional workloads and even cloud-based ones, Gen AI is quite different with sharp, expensive and fast-evolving architectural changes.”

Financial institutions must therefore apply a multidisciplinary approach to AI-driven transformation. As they tackle a broad set of challenges, many will require a trusted partner who understands the technical and organizational challenges to help enable AI strategies. They should look for a collaborator who can provide the network architecture for an AI ready world, including dedicated access to existing fiber routes and new routes between AI data centers and end users.

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Pillars of AI readiness

Financial institutions should follow this checklist[6] for optimized infrastructure for AI.

Low-latency connectivity
Trading systems, fraud alerts and smart assistants need a near-instant response from AI algorithms, which makes low-latency networking vital.

Resilience and scalability
Dynamic bandwidth allocation, pay-as-you-go services and API integration are some of the modern network services that help financial organizations scale and control their infrastructure for AI initiatives. That helps them to consume or build AI with more flexibility to cope with volatile workloads.

Broad network visibility
You can't optimize, secure or scale what you can't see. As AI workloads grow more complex and data flows span clouds, edge locations and third-party platforms, financial firms need end-to-end visibility into how, where and why data moves. Without it, performance bottlenecks go undiagnosed, vulnerabilities go undetected and AI models can drift off course.

End-to-end security
AI systems processing highly sensitive data, including credit histories, transactions and trades, are prime targets for breaches and fraud. Without strong defenses, firms risk flawed insights, manipulated models, lack of regulatory compliance and lasting damage to customer trust.

Read the complete AI in finance checklist.

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Why Lumen is the trusted AI network partner for financial institutions

AI is reshaping the financial services landscape, but what if the next competitive edge doesn't come from another AI application? What if it comes from the network? Lumen delivers the infrastructure, intelligence, and integration needed to unlock AI's full potential across financial operations.

Comprehensive AI strategy enablement

Lumen uniquely addresses all three pillars of a successful AI strategy—networking, data management, and cloud infrastructure—empowering financial institutions to scale AI securely and efficiently.

1 Intelligent data management at the edge

AI success depends on seamless data movement. Lumen Edge Cloud Solutions deliver dedicated bare metal servers with <5ms latency, enabling real-time decision-making where transactions occur. Software-defined storage extends cloud capabilities to the edge, to help ensure data is processed, consumed, and protected wherever it resides.

2 Scalable cloud and datacenter integration

Lumen colocation provides the physical foundation for high-performance workloads, placing infrastructure closer to cloud, core network routes, and edge locations. It supports AI operations by housing compute and storage resources adjacent to key connectivity services like Wavelength and IP, forming a critical component within the broader Private Connectivity Fabric architecture. Lumen helps financial institutions bring AI to production, supporting training, inferencing, and real-time decision-making.

3 Networking built for AI speed and scale

Lumen's integrated fiber infrastructure, high-speed internet, and private networking capabilities are engineered for performance. With edge connectivity and direct interconnects to 2,200+ data centers, the network is optimized for AI workloads.

In financial services, milliseconds matter. Whether powering trading algorithms or fraud detection systems, Lumen's low-latency architecture—enhanced by a strategic fiber partnership with Corning—helps ensure real-time responsiveness. Cloudified telecom services and Private Connectivity Fabric (PCF) offer flexible, high-capacity AI infrastructure tailored to financial use cases.

Security is embedded at the core. Lumen's Black Lotus Labs® monitors global internet traffic 24/7, proactively identifying and blocking threats. Unlike providers that treat security as an add-on, Lumen integrates threat detection directly into the network fabric.

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The bottom line

Lumen is more than a network provider—it is a strategic enabler of AI transformation in financial services. With unmatched infrastructure, embedded security, and deep industry partnerships, Lumen delivers the performance, protection, and precision financial institutions need to lead in the AI era.

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Three key network solutions powering AI in finance

Lumen offers network services to meet your AI needs.

Private Connectivity Fabric (PCF): Lumen PCF enables financial firms to build secure, high performance private networks with dynamic control. It's ideal for AI workloads that require low latency, data sovereignty, and compliance with strict regulatory standards.

Network-as-a-Service (NaaS): With Lumen NaaS, financial organizations can scale their network infrastructure on demand. NaaS is one piece of Lumen Connectivity Fabric—a flexible model that supports rapid AI experimentation and deployment without the overhead of traditional network management.

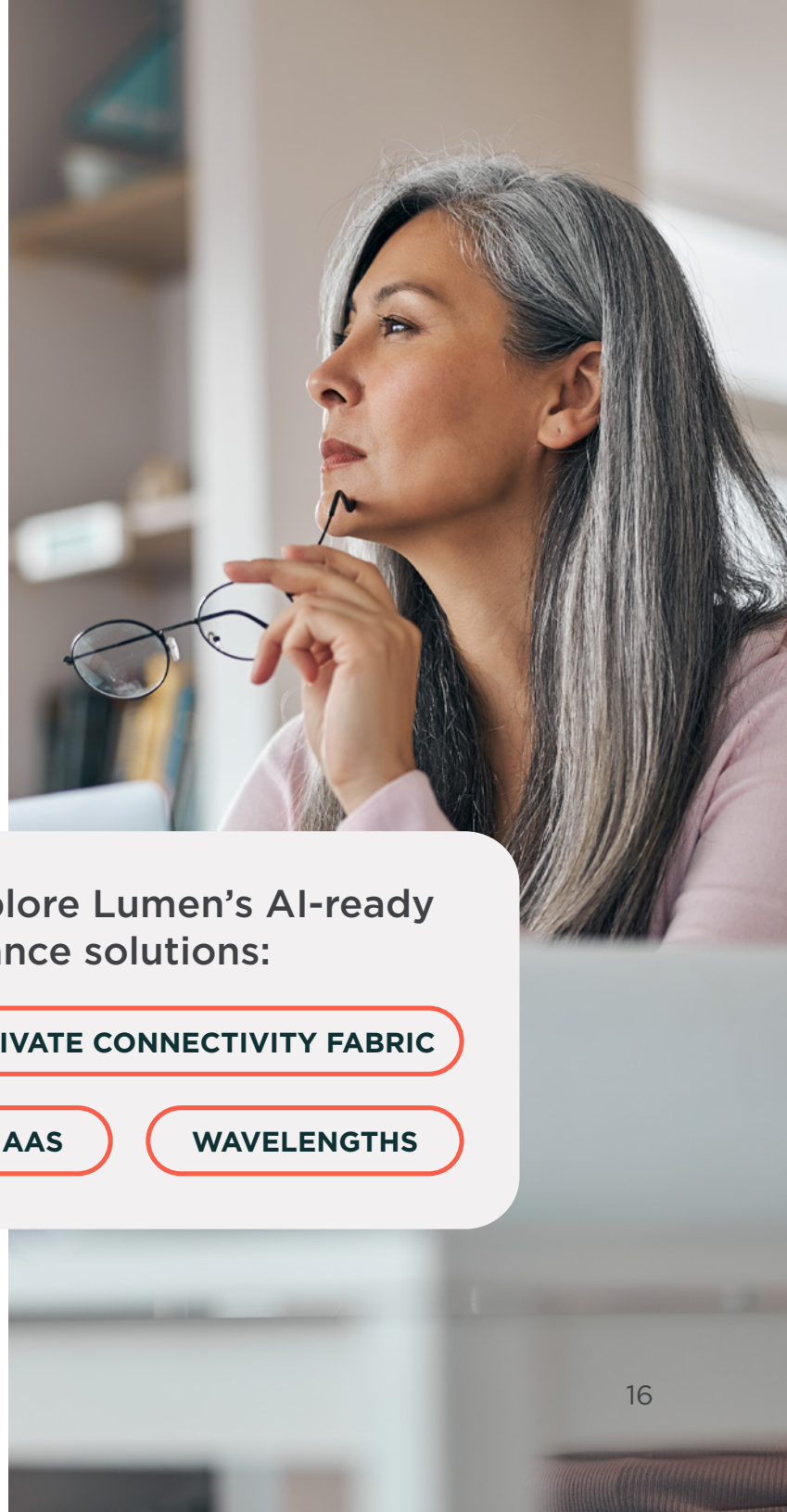
Wavelengths: For institutions running robust AI models or real-time analytics, Lumen Wavelength Solutions offers ultra-high bandwidth and dedicated optical transport. It's the backbone for moving large datasets quickly and securely between data centers, clouds, and edge locations.

Taking the next step in your AI transformation journey

AI promises to define the future of the financial sector, with applications that will drive operational efficiencies while delighting customers. It will not only enable the faster provision of existing services, but will, in time, create entire new product categories for financial organizations to offer their customers, driving up retention and cross-sales.

Amidst widespread AI adoption, the challenge for many financial companies is getting it out of the pilot phase to deliver meaningful benefits at scale. Success here remains elusive without aligned data, cloud and network strategies.

AI will define the industry's future. So, is your infrastructure ready? Lumen can help.



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