Post-Quantum Private LLM
Fully Homomorphic Encryption at Scale

CORNAMI + DESILO
Intelligent Computing
SOLUTIONS

Speed and Security, Without Trade-offs

Private LLMs offer transformative value for enterprises and industries—driving productivity, improving customer engagement, and creating competitive advantage. Yet, widespread adoption has been limited by the challenges of working with sensitive data: compliance requirements, high compute costs, integration complexity, and security risks that make deploying large models impractical.

> ***90% of enterprises anticipate privacy or sovereignty regulations will restrict AI deployments by 2026.***
>
> ***~ Gartner***

Current Market Limitations & Challenges

- Organizations cannot safely use LLMs on private data without exposing sensitive information during inference.
- Cloud models marketed as “private” decrypt data in use, breaking zero-trust assumptions.
- GPUs can’t handle encrypted workloads due to data movement bottlenecks in their von Neumann architecture.
- Compliance with GDPR and other data privacy regulatory requirements.
- No turnkey solution integrates compute + encrypted pipeline.

Market Solution

Cornami, with its next-gen massively parallel, scalable computing fabric - together with Desilo, an industry leading cryptographic software company overcome these barriers by combining Cornami’s FracTLcore® Fabric with Desilo’s FHE runtime stack, this solution offers the first scalable, PPML (Privacy Preserving Machine Learning), multi-tenant private LLM platform that remains encrypted in use and secure against post-quantum threats enabling industries and enterprises to harness AI insights while keeping their data fully protected—never decrypted, always secure.

The Cornami’s FracTLcore® compute fabric together with Desilo’s encrypted runtime stack, enables real-time FHE encrypted inference at scale, which is a massive breakthrough for compliance-centric industries and zero-trust environments.

Benefits & Outcomes

- LLM inference on encrypted data with no speed compromise
- Regulatory compliance with HIPAA, GDPR, and more
- Multi-tenant key switching with runtime policy enforcement
- Reduced AI attack surface with no decrypted memory states or tokens

Solution Overview

The Cornami MX System + Desilo Runtime provides a turnkey encrypted AI platform purpose-built for running LLMs without decrypting user data, prompts, or outputs, ever.

Cornami

- Eliminates von Neumann memory bottlenecks
- Runs FHE inference at plaintext speeds
- Supports Post-Quantum Encrypted multi-tenant deployments
- Scales from thousands to millions of cores

Desilo

- Real-time key agility for multi-party encrypted collaboration
- Integrated with Cornami for zero-trust, PQE-ready AI
- Models run encrypted end-to-end, protecting both enterprise IP and sensitive data

Post-Quantum Private LLM
Fully Homomorphic Encryption (FHE) at Scale

Cornami & Desilo eliminate the trade-off between speed and security.

Cornami + Desilo provide the only real-world deployable private LLM solution at scale combining massively parallel encrypted compute (no memory bottlenecks) with a secure, PQE-compliant FHE runtime that never decrypts — unlike GPUs, cloud models, or TEEs.

- First to offer encrypted LLM inference at plaintext speeds
- Purpose-built compute for FHE + policy-managed software runtime
- Architected for PQE, zero-trust, and multi-tenant deployments

Data breaches cost businesses an average of $4.88 million in 2024. ***~ AAG***

Cybercrime is projected to cost the world $9.5 trillion annually in 2024, with expectations to reach $10.5 trillion by 2025. ***~ Cybersecurity Ventures***

32% of cyber incidents involved data theft and leaks, indicating a shift toward stealing and selling data, rather than encrypting it for extortion. ***~ IBM***

AI Enables Developing Data as an Asset, Don't Get Left Behind

What Enterprises Need

- Private, secure AI co-pilots
- Zero data exposure outside organization walls
- Deterministic performance for real-time workflows
- Compliance that's a "built-in" not a "bolt-on"

Market Approach

- **Initial focus:** Banking/Financial Sectors, Telecom, Defense, Government, Healthcare, Legal
- **Partnership: Desilo:** Leading cryptography software company delivering a runtime PQE+FHE stack.
- **Cornami:** Inventor of the FracTLcore® computing fabric, enabling scale + determinism
- **Deployment models:** On-prem, cloud, and/or hybrid-cloud models

Market Use Case Examples

Healthcare
A hospital runs an on-prem clinical LLM co-pilot that handles patient data without violating HIPAA or exposing it to the cloud.

Financial Services
A global bank deploys an encrypted LLM for AML and transaction monitoring; fully GDPR and PQE compliant, with no data decryption.

Legal & Compliance
A law firm uses a private LLM to draft and analyze case law while maintaining strict client confidentiality and eliminating cloud exposure.

Defense & National Security
A defense contractor runs encrypted, multi-tenant LLM workloads across shared infrastructure while meeting zero-trust and classified data mandates.

Pharmaceutical Research
A pharma company uses a private LLM to analyze genomic data and generate protocols; fully encrypted and compliant across global teams.

Enterprise Security & Operations
A multinational uses an encrypted LLM for secure DevOps and incident response; real-time, no decryption collaboration across global teams.

Contact Cornami or Desilo Today for Early Access and to Discuss Your Requirements

Cornami + Desilo have partnered to deliver the only post-quantum encrypted turnkey private AI system built for the data age.

Cornami
www.cornami.com
sales@cornami.com
(+1) 408-337-0070

Desilo
www.desilo.ai
contact@desilo.ai
(+82) 02-6953-5990