

Hydra Hexcore

Tool for Deployment Multi-Hydra Head

PROJECT CLOSE-OUT REPORT

✓ 100% COMPLETED

Report Date: February 2026

APPLICANT
Vtechcom Labs

DURATION
Aug 2025 – Feb 2026

CHALLENGE
Developer Tools

🎯 Challenge & Funding

🚩 The Challenge

Cardano Open Developers - Simplify Hydra node deployment with full automation, saving time and optimizing infrastructure.

- ✓ High technical barriers for adoption
- ✓ Lack of developer-friendly tools
- ✓ Complex multi-party coordination

🎯 Goals & Funding

Funded: 95,000 ADA

- ✓ Manage multiple Hydra Heads on same server
- ✓ Intuitive UI + CLI tools
- ✓ Security & scalability

💡 Technical Solution



NestJS
API Backend



Docker
Deployment



Nuxt 3
UI + CLI



NGINX
Gateway

01. Executive Summary

Hydra HexCore is a **NestJS backend service** to manage **Hydra Heads**—Layer 2 scaling for Cardano. Provides APIs for node management, transactions, and multi-party operations.

🎯 Challenge KPIs

- ✓ Reduce Hydra Head setup time
- ✓ Increase developer accessibility
- ✓ Improve documentation
- ✓ Ensure security & scalability

✅ Project KPIs (Achieved)

- ✓ NestJS Backend + Docker
- ✓ Responsive UI with RBAC
- ✓ Gateway & CLI Integration
- ✓ Open Source (MIT License)
- ✓ Mainnet ready

02. Milestones Delivered

1 Core System

- ✓ NestJS Backend + Docker
- ✓ MySQL/Redis state management
- ✓ RESTful APIs

2 User Interface

- ✓ Responsive Nuxt 3 UI
- ✓ Management dashboards
- ✓ Real-time tracking

3 Gateway & CLI

- ✓ NGINX reverse proxy
- ✓ JWT authentication
- ✓ hexcore-cli tool

4 Final Report

- ✓ Documentation
- ✓ Video recap
- ✓ Public GitHub repo

03. Project Team



Project Manager

- ✓ 10+ years experience
- ✓ Oversees execution & delivery
- ✓ Stakeholder coordination



Core Developers (4)

- ✓ **Frontend:** Nuxt 3 (5+ yrs)
- ✓ **Backend:** NestJS (6+ yrs)
- ✓ **Blockchain:** Cardano (10+ yrs)
- ✓ **DevOps:** CI/CD (4+ yrs)



UI/UX Designer

- ✓ 3+ years dApp design
- ✓ Intuitive dashboards
- ✓ User testing & iteration



QA Specialist

- ✓ 8+ years in QA testing
- ✓ Unit, integration, E2E tests
- ✓ Preprod & Mainnet verified



Team Strength

7 specialists • 40+ years combined experience • Agile methodology • Passionate about Cardano Layer 2

04. Key Achievements

- ✓ **First open-source tool** for automated multi-Hydra Head deployments
- ✓ **Secure & scalable** management with accessible UI/CLI
- ✓ **Comprehensive documentation** and rapid onboarding
- ✓ **Direct contributions** to IOG Hydra team via GitHub
- ✓ **Integration** with Vtechcom products (Hydra Wallet, FastPay)



Key Learnings

- ✓ Robust error handling required
- ✓ Contributed fixes to IOG
- ✓ Performance optimization critical
- ✓ UX feedback integration



Impact Metrics

- ✓ 100% milestone completion
- ✓ Open-source MIT license
- ✓ Active IOG collaboration
- ✓ Production-ready Mainnet

05. Collaboration

Hydra Core Team (IOG)

Active collaboration via **GitHub issues**, submitting bug reports and feature requests. Direct contributions improved Hydra ecosystem stability and functionality.

Cardano Community

- ✓ Forum posts & discussions
- ✓ Discord engagement
- ✓ Developer feedback

Open Source

- ✓ Public GitHub repository
- ✓ MIT License
- ✓ Ecosystem support

06. Future Roadmap

Technical Enhancements

- ✓ Advanced multi-party modes
- ✓ Local Hydra cluster deployments
- ✓ Continuous compatibility upgrades
- ✓ Enhanced monitoring & analytics

Ecosystem Growth

- ✓ Hydra deployment academy
- ✓ Tutorial series
- ✓ Expanded CLI functionality
- ✓ Community workshops

Long-term Vision

Position Hydra HexCore as the de facto standard for deploying and managing Hydra Heads on Cardano. Act as complementary infrastructure enabling users to become Hydra Node providers, fostering a decentralized, scalable Layer 2 ecosystem.

07. Evidence Links

Close-out Video

<https://www.youtube.com/watch?v=DBEkgn5eM6M>

Documentation

<https://github.com/Vtechcom/hydra-hexcore/blob/master/README.md>

GitHub Repository

<https://github.com/Vtechcom/hydra-hexcore>

Catalyst Proposal

<https://projectcatalyst.io/funds/14/cardano-open-developers/hydra-hexcore-tool-for-deployment-multi-hydra-party>

Hydra Contributions

<https://github.com/cardano-scaling/hydra/issues?q=author%3Aaniadev>