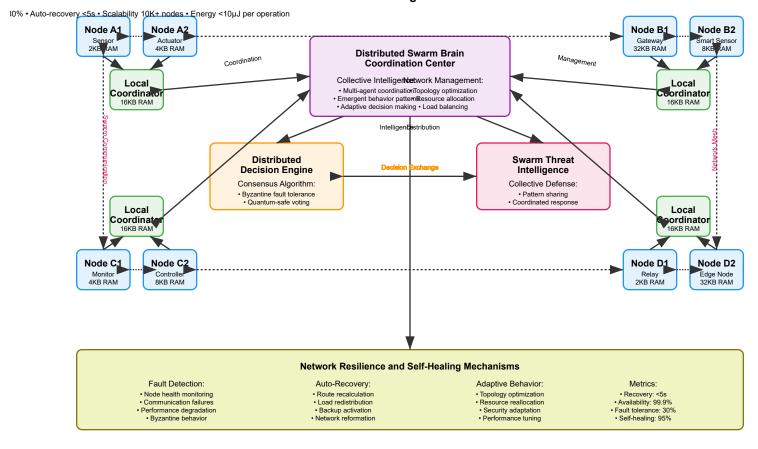
FIGURE 4: IoT Swarm Intelligence Network Architecture



Quantum-Safe Swarm Consensus Protocol

Consensus Steps:

Proposal broadcast
Local validation

Cryptographic voting
Result aggregation

Performance:

• Consensus time: <100ms • Message overhead: <5% • Energy cost: <10µJ/vote • Scalability: 10K+ nodes