[00:00:45] Blockchain is a decentralized and transparent system that records data across multiple nodes, removing the need for a central authority. It enables secure transactions and automates processes through smart contracts. These smart contracts execute automatically when predefined conditions are met, increasing efficiency and reducing the chance of human error. Page 4 of 9

(01:12) Quantum computing, using qubits and quantum mechanics, can solve certain problems much faster than classical computers. This capability could drastically improve optimization tasks, drug discovery, and artificial intelligence. However, this power threatens current encryption methods used in blockchain systems, potentially making today's secure networks vulnerable in the near future.

4

[1:23:11.123] To counter this, researchers are developing quantum-resistant cryptographic algorithms. These include lattice-based and hash-based methods aimed at securing future blockchain systems. Some blockchain developers are already testing hybrid systems that can transition to post-quantum cryptography. Page 8

(00:02) The intersection of blockchain and quantum computing is both a risk and an opportunity. Adapting to quantum threats is essential to protect the integrity of decentralized systems moving forward. If done correctly, it may lead to a new class of ultra-secure, future-proof digital infrastructures that combine the strengths of both technologies.