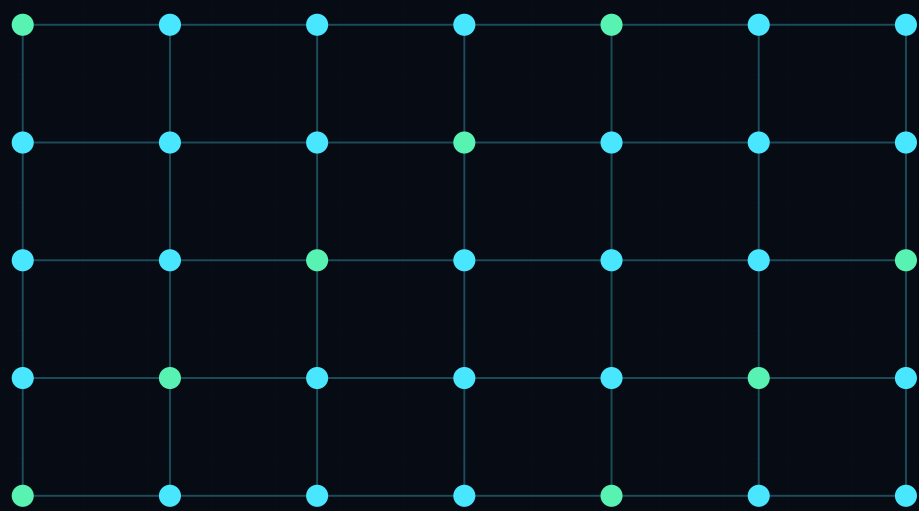


Quantum Technology and PQC Engineering Guide



Architecture & Assurance Map

A compact reasoning model for implementation, assessment, and evidence review.



OPERATING POSITION

Quantum advantage claims require a declared workload, comparator, error model, and reproducible evidence.

EVIDENCE PATH

problem -> mapping -> circuit -> hardware -> measurement -> classical comparator

READINESS SIGNALS

fidelity, logical error, runtime, cost, reproducibility, advantage boundary

PERMANENT PUBLICATION IDENTITY

Quantum Technology and Post-Quantum Engineering Guide			DOCUMENT ID MYTHOS-GUIDE-QTC-0001 VERSION 1.0.0-candidate STATUS Candidate Engineering Guide PUBLISHER Mythos Systems PUBLICATION DATE 2026-07-24 SCHEDULED REVIEW 2027-01-24 CLASSIFICATION Public
0 ATOMIC CRITERIA	6 ASSURANCE VIEWS	4 IMPLEMENTATION PROFILES	1 PERMANENT IDENTITY

Publication doctrine. This publication establishes durable requirements for its defined scope. Interpretation must preserve the permanent document identity, required evidence, controlled exceptions, source currency, and formal revision history.

EMERGING TECHNOLOGY AND ASSURANCE TOPOLOGY

Quantum Technology and Computing

A trustworthy quantum technology and post-quantum engineering guide program is a governed path from research claim through baseline, experiment, safety and security challenge, transition decision, bounded operation, and preserved evidence.

CLASSIFY

Separate established practice, candidate standard, reproduced result, vendor claim, implementation hypothesis, and open research.

EXPERIMENT

Declare baseline, configuration, uncertainty, scenario coverage, stop conditions, and independent reproduction before conclusions.

CONSTRAIN

Identity, policy, safety envelopes, physical boundaries, cryptographic authority, and human intervention limit consequence.

TRANSITION

Adoption, pilot, production, rollback, supplier exit, lifecycle, and retirement decisions remain evidence-bearing and reversible.

EVIDENCE - BOUND TRANSITION FLOW



No novelty claim becomes an operational claim without reproduced evidence and an explicit authority decision

INTERPRETATION AND ASSURANCE

How to apply this publication

Normative intent

Requirements define outcomes and constraints. Implementations may vary, but evidence must demonstrate equivalent control.

Evidence over assertion

Vendor documentation and design intent are not equivalent to reproduced behavior. Record evidence grade and uncertainty.

Risk-proportional depth

Higher consequence, autonomy, sensitivity, and irreversibility require stronger isolation, review, verification, and recovery.

Controlled exception

Exceptions require an owner, rationale, compensating control, residual-risk acceptance, expiration, and reevaluation trigger.

Normalized assessment scale

0	1	2	3	4	5
ABSENT	AD HOC	PARTIAL	OPERATIONAL	ADVANCED	LEADING

A numeric score must never hide a failed mandatory gate, missing evidence, untested workload, or unacceptable residual risk.

MYTHOS-GUIDE-QTC-0001 / QUANTUM TECHNOLOGY

Engineering Doctrine

Engineering guide for quantum workloads, networking, sensing, hybrid orchestration, fault tolerance, and PQC migration.

OPERATING POSITION

Separate quantum computing, communications, sensing, and quantum-resistant cryptography.

- Preserve classical baselines and fallbacks.
- Never remove calibration, uncertainty, provider, or algorithm state from a claim.

MYTHOS-GUIDE-QTC-0001 / QUANTUM TECHNOLOGY

Quantum Experiment

OPERATING POSITION

Problem encoding.

- Resource estimate.
- Backend and calibration snapshot.
- Compilation and noise model.
- Shots and confidence.
- Classical comparison and independent reproduction.

PQC Migration

OPERATING POSITION

Discover cryptography.

- Classify data lifetime.
- Select portfolio and hybrid strategy.
- Test protocols and vendors.
- Migrate in waves.
- Revoke legacy algorithms and prove coverage.

Quantum Network and Sensing

OPERATING POSITION

Authenticate classical channels.

- Record trusted-node and detector assumptions.
- Maintain timing, calibration, traceability, environmental, and fallback evidence.

Adoption Gates

OPERATING POSITION

No advantage claim without equivalent comparator.

- No PQC completion claim with legacy downgrade paths.
- No key release or consequential decision from unverified quantum evidence.

MYTHOS-GUIDE-QTC-0001 / QUANTUM TECHNOLOGY

Publication Controls and Decision Record

Permanent identity, evidence, exceptions, and revision discipline

- Document identity remains stable across revision and packaging.
- Evidence grades and uncertainty accompany consequential claims.
- Exceptions are time-bounded and independently visible.
- Source currency is reviewed at assessment and scheduled publication review.
- Release artifacts are hashed and listed in the public manifest.

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11. Source Authority and Reference Register

Primary sources informing interpretation; verify current status at assessment time

NIST CSF 2.0

Cybersecurity Framework 2.0

<https://doi.org/10.6028/NIST.CSWP.29>

Enterprise governance and cybersecurity outcome framework.

NIST PQC Standards

Post-Quantum Cryptography Project

<https://csrc.nist.gov/projects/post-quantum-cryptography>

FIPS 203, 204, and 205, HQC selection, and continuing migration guidance.

NIST SP 800-53 Rev. 5

Security and Privacy Controls for Information Systems and Organizations

<https://doi.org/10.6028/NIST.SP.800-53r5>

Broad organizational control baseline for technology systems and services.

ETSI QKD

Quantum Key Distribution Industry Specification Group

<https://www.etsi.org/committee/qkd>

QKD component, interface, security, deployment, and interoperability specifications.

NIST Quantum Science

Quantum Science Programs and Testbeds

<https://www.nist.gov/quantum-science>

Official NIST research across quantum computing, communications, networking, sensing, and metrology.

ISO/IEC 4879:2024

Quantum Computing - Terminology and Vocabulary

<https://www.iso.org/standard/80432.html>

International terminology foundation for quantum computing concepts.

NIST Quantum Networks

Quantum Networks at NIST

<https://www.nist.gov/pml/productsservices/quantum-networks-nist>

Quantum-network concepts, components, applications, and metropolitan research testbeds.

Source currency rule: authorities, specifications, laws, provider services, hardware, protocols, standards status, and research evidence MUST be checked at assessment time. This publication records a 2026-07-24 source snapshot.