Quantum Safe Cryptography

Introducing the IBM Research Security Reviews subscription

Stay current with the world’s leading security research
IBM Research offers clients in-depth reviews of cutting-edge cryptography research

IBM is a long-standing leader in cryptography research, with an eye for real-world issues

- IBM has decades of experience in cryptography research and is a world leader on many fronts, for example, in setting new quantum-safe crypto standards in collaboration with NIST and ETSI
- IBM is blazing the trail for quantum computing, while in parallel developing the next generation security solutions. This combined insight gives us a balanced perspective on the risk and impact for our clients
- IBM has a solid understanding of real-world issues that our clients are facing, starting with financial services and crossing most every industry

Why keep up-to-date with crypto research?

- With the advent of quantum computers, cryptography today is facing a revolution
- There is an explosion of hundreds of new crypto algorithms that are quantum-safe, with the field evolving at a very rapid pace
- These changes will significantly impact many applications
- Corporations need trusted advice on managing the transitions, understanding new standards, and identifying associated risks

IBM Research Security Reviews subscription

- A new subscription model offering from IBM research
- Our focus in the first year is on quantum-safe crypto research
- Also, related topics such as crypto agility will be featured
- Learn what IBM Research is thinking on this fast paced topic
The first year of the IBM Research Security Reviews will focus on quantum-safe cryptography.

Subscribers can expect:

- Commentary on global standardization efforts of quantum-safe crypto. Various standards organizations are defining standards for quantum-safe cryptography. IBM is deeply involved in this process and will provide clients with a first-hand account of the latest developments.

- New algorithms research overview and status, such as for:
  - Multivariate crypto
  - Code-based crypto
  - Lattice-based crypto
  - Hash-based signatures / symmetric crypto
  - Super-singular isogenies-based crypto

- A practical perspective on implementing cryptographic agility

Quantum computers are moving out of the lab and may some day be able to break widely-used cryptography methods.
Quantum-Safe Cryptography: IBM Research Security Reviews Subscription

Topics:
- a) Quantum risk to cryptography
- b) Quantum safe cryptography standards
- c) Quantum safe cryptography performance and optimization
- d) Implication of quantum algorithms to networks, infrastructure, services and applications
- e) Quantum safe migration strategies
- f) Cryptographic and cyber-security agility

Delivery:
- a) Initial background report available now (see the sample)
- b) Reports published quarterly including updates on cryptography research → Next report to be published on September 23, 2019
- c) Seminars aligned with an IBM Q Network quarterly meeting or event → Next seminar on October 2, 2019 at IBM Research in Zurich
- d) Subscription ends on June 30, 2020

Enrollment:
- a) Corporate subscription price starts at $15K/seat (enterprise license also available)
- b) Request a sample contract from your IBM Representative

2nd PQC Standardization Conference
August 22-24, 2019
University of California, Santa Barbara

The NIST Post-Quantum Cryptography Standardization Process has entered the next phase, in which 26 second-round candidates are being considered for standardization. NIST plans to hold a second NIST PQC Standardization Conference in August 2019 to discuss various aspects of these candidates, and to obtain valuable feedback for the selection of the finalists. NIST will invite each submission team of the 26 second-round candidates to give a short update on their algorithm.

Published on the NIST website

Perspectives from IBM Research can help you understand what to expect and how to plan
IBM Research offers unique expertise with decades of deep research in cryptography and quantum computing.

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Designed by IBM scientists, systems engineers and industrial designers, IBM Q System One is optimized for stability, reliability, and continuous commercial use.