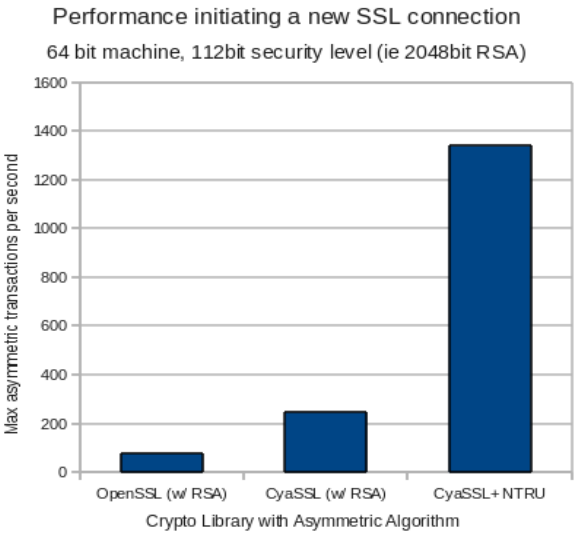
CyaSSL+NTRU – High-Performance SSL

Very fast, very small SSL
Ideal for Embedded and RTOS; OpenSSL-compatible

CyaSSL+NTRU: 20x-200x Faster



CyaSSL was built for embedded and RTOS environments and is also widely used in standard operating environments.

Because it is based on different math from RSA and ECC, the NTRU algorithm has different cryptographic properties. Most importantly, at comparable cryptographic strength, NTRU performs the costly private key operations much faster than RSA. In fact, **CyaSSL+NTRU runs 20x to 200x faster than OpenSSL RSA.** In addition, NTRU's comparative performance increases with the level of security required.

By moving to CyaSSL with the NTRU algorithm, organizations can gain 4x the CPU cycles and a corresponding saving in infrastructure costs, battery drain, or cost of goods sold.

NEXT GENERATION CRYPTO

NTRU is an alternative asymmetric algorithm to RSA and ECC. It is based on a different mathematical problem, known as "lattice reduction", which makes it much faster and resistant to quantum computing attacks.

QUANTUM-RESISTANT

When quantum computing attacks are realized, a product built with CyaSSL+NTRU will already be running a library with a future-proof algorithm.

SUPPORTED ALGORITHMS

- Key exchange RSA, DSS, DH, NTRU
- Bulk encryption DES, 3D ES, AES, ARC4, RABBIT, HC-128
- MAC: MD2, MD5, SHA-1, SHA-512, RIPEMD

Benefits

- **Very Fast**

  CyaSSL+NTRU runs 20x to 200x faster than OpenSSL RSA, reduces server resource utilization for large-scale deployments, and significantly increase the number of concurrent connections.

- **Very Small**

  CyaSSL+NTRU is smaller than any other public key crypto (8kb). In terms of crypto libraries, CyaSSL is up to 20x smaller than OpenSSL. CyaSSL is ideal for embedded systems and RTOS, but is applicable for any operating system requiring SSL.

- **Standards Based**

  CyaSSL+NTRU fully supports the industry standards up to the current TLS 1.2 level. NTRU Encrypt was standardized by IEEE as Standard IEEE 1363.1-200 and by the financial industry's ASCX9 as X9.98. NTRU Sign standardization is in process.

- **Highly Portable**

  CyaSSL is built for maximum portability, and is very easy to compile on a variety of platforms. It supports the C programming language as its primary interface. Other host languages, including Java, PHP, Perl, and Python, are supported through a swig interface. Supported platforms include ARM, Intel, iOS, Linux, Motorola, Win32, and more.

> "Of the various lattice-based cryptographic schemes that have been developed, the NTRU family of cryptographic algorithms appears to be the most practical… There are viable alternatives for both public key encryption and signatures that are not vulnerable to Shor's Algorithm"
>
> **"Quantum Resistant Public Key Cryptography: A Survey"**
> NIST 2009

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