

Enigma Bridge – Data Security for the Cloud Integration and Deployment

Enigma Bridge has developed a revolutionary cryptographic platform that delivers scalable and high-speed end-to-end data security solutions for the cloud. Enigma Bridge is easily integrated with in-house or third party business software applications using a published Web Service API or cryptographic wrappers (e.g., PKCS11) with customisable atomic transaction definitions to meet application requirements.

At the heart of the Enigma Bridge solutions is the hardware security unit, which uses the most secure data processing technology available on the market today (FIPS140-2 Level 3 validated).

The high level functional operations supported by Enigma Bridge include:

- Secure software key management (PKI as well as symmetric key).
- Data encryption/decryption.
- Secure data processing.
- Data transaction management.
- Application usage metering.

Open Web Service API for integration and operation with client business applications provides a secure, easy to use, scalable data encryption solution that software developers can use for the development of business applications as easily as they would utilise database, user interface or networking tools.

Deployment

From the outset the Enigma Bridge platform has been designed as a cloud service solution for the public network. However, it can also be deployed in a private cloud or dedicated internal network.

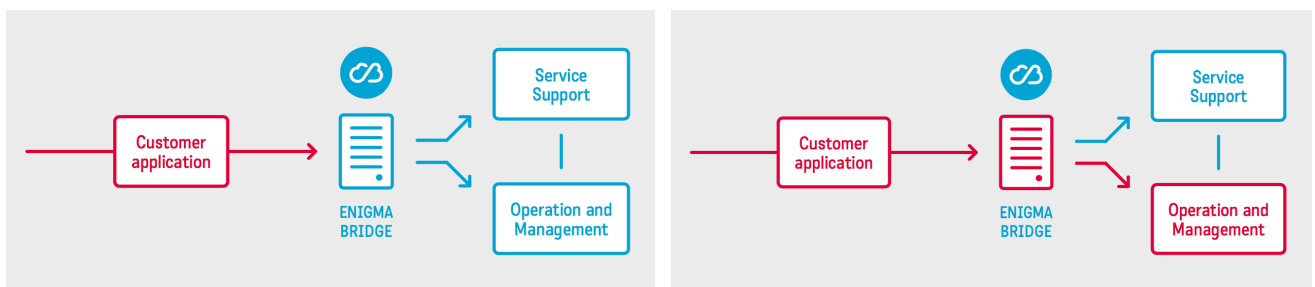


Figure 1: Enigma Bridge deployment configurations.

The diagrams above illustrate the deployment options. The diagram on the left depicts the provision of Enigma Bridge as a cloud service and the diagram on the right depicts the onsite deployment of Enigma Bridge in a customer network.

Both the cloud and onsite service options provide secure access to the Enigma Bridge and dedicated physically partitioned hardware environments for processing data securely.

The Enigma Bridge team provide integration and management services to ensure customer requirements are met. For example, the team will remotely monitor the platform using operational logs to ensure problem free operation.

Integration

The Enigma Bridge approach to integration with business applications has significant advantages for our customers. This has been developed based on the team’s extensive experience with large corporate networks and a detailed understanding of the technical and commercial issues impacting internal projects and the operational considerations for large IT systems.

The Enigma Bridge application interface is built around atomic business transactions. This allows direct integration with business applications without the need to develop additional integration modules. Developers can choose from existing atomic functions or create new functions as required to fit the business/application requirements.

Also, new applications can be prototyped with the Enigma Bridge test environment (which is accessible via the public cloud) and once validated the application can then be easily transferred to the production servers using a simplified application enrolment process.

The Enigma Bridge API provides access via single function calls. It is implemented as a Web Service and application level message formats currently include JSON and REST. Requests from applications are stateless and as such there is no overhead related to establishment and management of connections. This also significantly simplifies client-side language bindings. Security of connections to the Enigma Bridge service is provided at message level with an option for HTTPS channels.

The benefits of the Enigma Bridge approach include:

- Project based costing, reduced cost for dedicated cryptographic hardware resource.
- Reduced development complexity and requirement for specialist development skills.
- Simplified change management for infrastructure components.
- Fixed integration costs.

Performance Comparison

The following table shows some of the key performance characteristics of the Enigma Bridge platform compared with other solutions.

Performance Metric	Other Hardware Security Modules	Enigma Bridge Platform
Cryptographic speed	9,000 RSA / 1-10Mbps AES	500 RSA / 8 Mbps (smallest HW unit)
FIPS140-2	Level 3	Level 3
Reliability	1 CPU	Automatic internal hardware failover
Authorisation enrol	Smart cards / password	Smart cards / password
Authorisation use	n/a	Optional, presence of authorisation token
Sharing	Logical	Physical separation
API	Low-level cryptographic	Business-oriented atomic transactions
Audit	Limited	Detailed authenticated usage data
Monitoring	Limited	Usage, source IP addresses, SLA breaches

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