Crypto API and Snorkel – A Comparison

Integration Effort

API Integration

1 Integration requires changes to the business application to accommodate PKI functionality. If the business application is old / insufficiently documented, the change process can become complicated.

2 Integration methodology has to be specific to the application architecture, the application server platform, and the OS and hardware platforms.

Snorkel

1 Snorkel requires absolutely no change to the business application as it functions like a reverse proxy and requires no integration. The solution can be configured to work with any business application regardless of how old the application is or how well it is documented.

2 Snorkel is agnostic to application architecture, application server platform, OS, and hardware.

Snorkel can in fact service multiple applications on different platforms simultaneously.

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③ Integration and maintenance efforts will be proportionate to the number of URLs that require a digital signature.

③ URLs that require signatures are easily configured in Snorkel with a few mouse clicks. There is no need for additional scripting or coding.
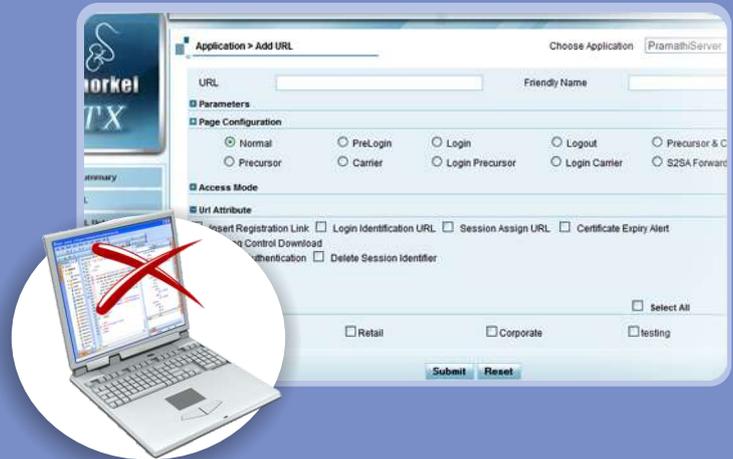
④ Business applications continue to change and evolve due to market pressures. To accommodate these changes, the business would need a well qualified API integration team permanently.

④ The business application behind Snorkel can continue to evolve unhindered. Even new business applications can be added effortlessly by only making configuration changes in Snorkel each time.

⑤ Code level changes are required for even small changes in security parameters like the key size, and algorithm. Providing additional services like OCSP are also not trivial.

⑤ Changes to any and all security parameters including non-trivial activities like adding OCSP services can be achieved by making simple configuration changes in Snorkel.

This considerably reduces time to market.

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6 Everytime the business application is modified, there has to be an extensive testing cycle to ensure conformance to standards and regulations, correctness of operation and security. Long lead times are inevitable.

6 No testing is required since changes to the business application can be accommodated through configuration changes in Snorkel. Therefore, there will be no appreciable lead time for launching new features.
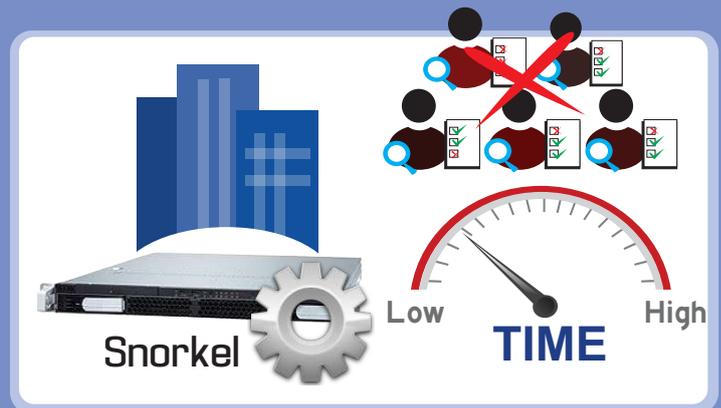
7 The integration model requires highly skilled manpower with considerable knowledge and experience in both the application and PKI domain. Such skill sets are hard to hire and even harder to retain, be it for the service provider or e-security vendor. The risks of losing the manpower and thereby rendering the application useless remain high.

7 Snorkel requires manpower with only operational skill sets that can be easily obtained, trained and retained. The operations call for only minimal application domain knowledge.

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Operation

API Integration

1 API integration models typically store digital signatures of end users in the application database itself. Often, the significant collateral data required to preserve the legal validity of signatures such as the key history, CA history, OCSP responses etc. are either neglected or not segregated logically, resulting in a clumsy and insufficient application.

2 Integration methodology has to be specific to the application architecture, the application server platform and the OS and hardware platforms.

Snorkel

1 Snorkel is dedicated to managing all PKI related data and activities, and there is hence an intrinsic segregation of the business application and security component. This results in both physical and logical separation, resulting in a highly efficient and comprehensive system that can be relied upon for dispute resolution.

Snorkel

2 Snorkel becomes the single point of adminstration for all certificate and signature related activities for any number of applications.

This results in substantial operational cost savings.

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Performance

API Integration

1 Signature verification casts additional load on the business application. Depending on the application, there can be 20 – 60% degradation in performance.

2 The APIs are usually in a high level language like Java, C# or Visual Basic that consume more processing power than the algorithms actually need.

This slows down the cryptographic functions considerably.

Snorkel

1 There is no additional load on the application. In fact, the SSL functionality is offloaded from the application to Snorkel thereby marginally improving the application performance.

2 Snorkel's cryptographic implementations are in X86 assembler or in low level C thereby taking advantage of numerous performance boosting techniques available in these languages.

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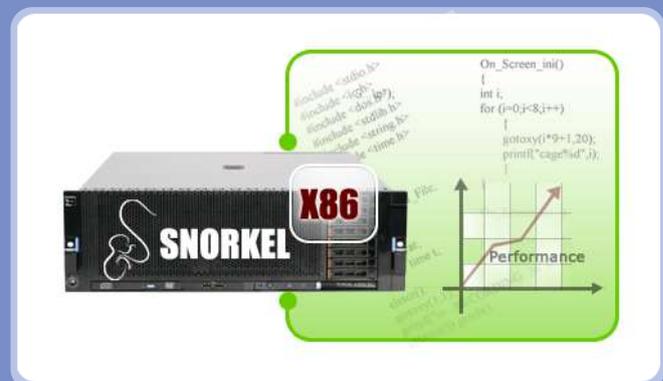
3 Most web applications and crypto APIs are in 32-bit. This leads to underutilization of the commonly available 64-bit processors. Even where the Crypto APIs are in 64 bit, the system has to continuously switch between 32-bit and 64-bit code which actually performs worse than a pure 32-bit application.

3 Snorkel and the business applications run in different hardware systems. Snorkel is an all 64-bit solution that runs on native 64-bit processors, thus leveraging maximum performance from the underlying platform.

Cost

API Integration

Snorkel

1 Unless the business is very small and has less than 1000 users, the absolute cost of deployment and maintenance can work out to be higher than that for Snorkel, even if the application has only 2 or 3 URLs needing digital signature.

1 For any application with at least a 1000 users, Snorkel can boast of smaller per user initial cost as well as operational costs.

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2 High recurring costs are involved whenever changes are done to the application including when additional transaction pages need to be signed. Such costs are often variable.

2 Recurring costs in the form of AMCs are fixed and optional. Changes to the application are accommodated by simple configuration changes in Snorkel and therefore involves no costs and consequently no uncertainty.
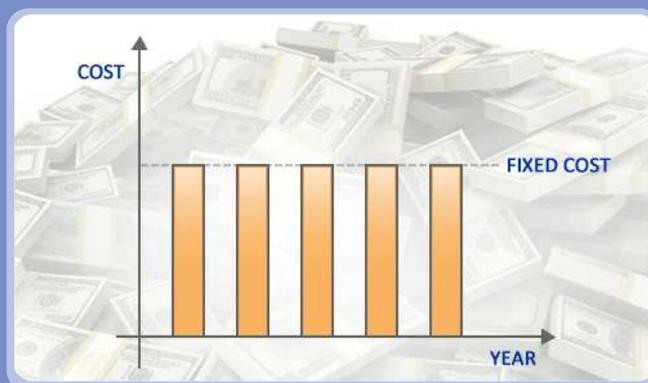
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