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| ***Securing SQL Server*** |
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Data breaches have been reported in all industries, from education to healthcare to finance. Database security did not take priority in the enterprise IT security plans until a few years ago, when a series of database breaches exposed private consumer information to public domain putting their customers’ financial, educational and health records at risk.

Organizations have now started putting more effort in securing their data servers from intrusions. This is not only done to protect sensitive customer data, but also to comply with data protection laws like, The Health Insurance Portability and Accountability Act (HIPPA), Sarbanes Oxley (SOX) and The Gramm-Leach-Bliley Act (GLB) [1] . A survey conducted by InformationWeek in 2010 showed that 70% of the organizations have database security assessment programs in place [2]. According to [www.privacyrights.org](http://www.privacyrights.org) , companies have reported 3,385 data breach incidents since 2005. These breaches have affected 563,536,722 records [3].

This paper will discuss various ways to secure SQL server and recommend strategies that can be implemented to secure SQL server and prevent data breaches.

Maintaining secure data servers through layered security measures is the approach demonstrated in this paper.

Here is the proposed outline for this paper:

* Abstract
* History of SQL server
  + Evolution in security features (SQL 2000-2012)
* Why secure databases
  + Avoid liability of making private information - public
  + Laws that impose security measures
* Security through layered approach
  + Network level security implementation
    - Basic network firewall settings and Firewall settings for web-facing data servers [4]
    - Server firewall configuration [5]
  + Server/Instance Security
    - Installation Configuration
    - Patch management
    - Database Authentication modes
    - User logins and password management
    - Managing service account security
  + Database /object security
    - User permissions
    - Object level permissions
    - Table/column permission
    - Data encryption
    - Securing database backups
  + Secure coding and application design
    - Secure application coding
    - Protecting database connection strings
    - Preventing SQL injection attacks [6]
  + Policies to secure databases
    - Password complexity /expiration policy
    - Backup maintenance policies
    - Non-IT users training
  + Securing SQL Azure (SQL in Cloud) [7]
* Security tools
  + Microsoft tools
  + Third party tool
  + Free/open source tools
* Recommendations and best practices
  + Security Recommendations & best practices [8]
  + Techniques to help discover SQL server weaknesses [9]
* Response to a security breach
  + Logs audits
  + Forensic investigation
  + Actions required by law after a breach
* Conclusion

# Works Cited

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