GREENSQL

Database Security

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Agenda

- Database Security
- What is GreenSQL ?
- Management Console
- Demo
- GreenSQL Roadmap

The need

Hackers have become professional

There are business models that finance them

SQL Injection attacks are becoming increasingly sophisticated and difficult to combat.

It uses stealth techniques to go unnoticed for as long as possible.

Hackers create much more SQL Injection attacks

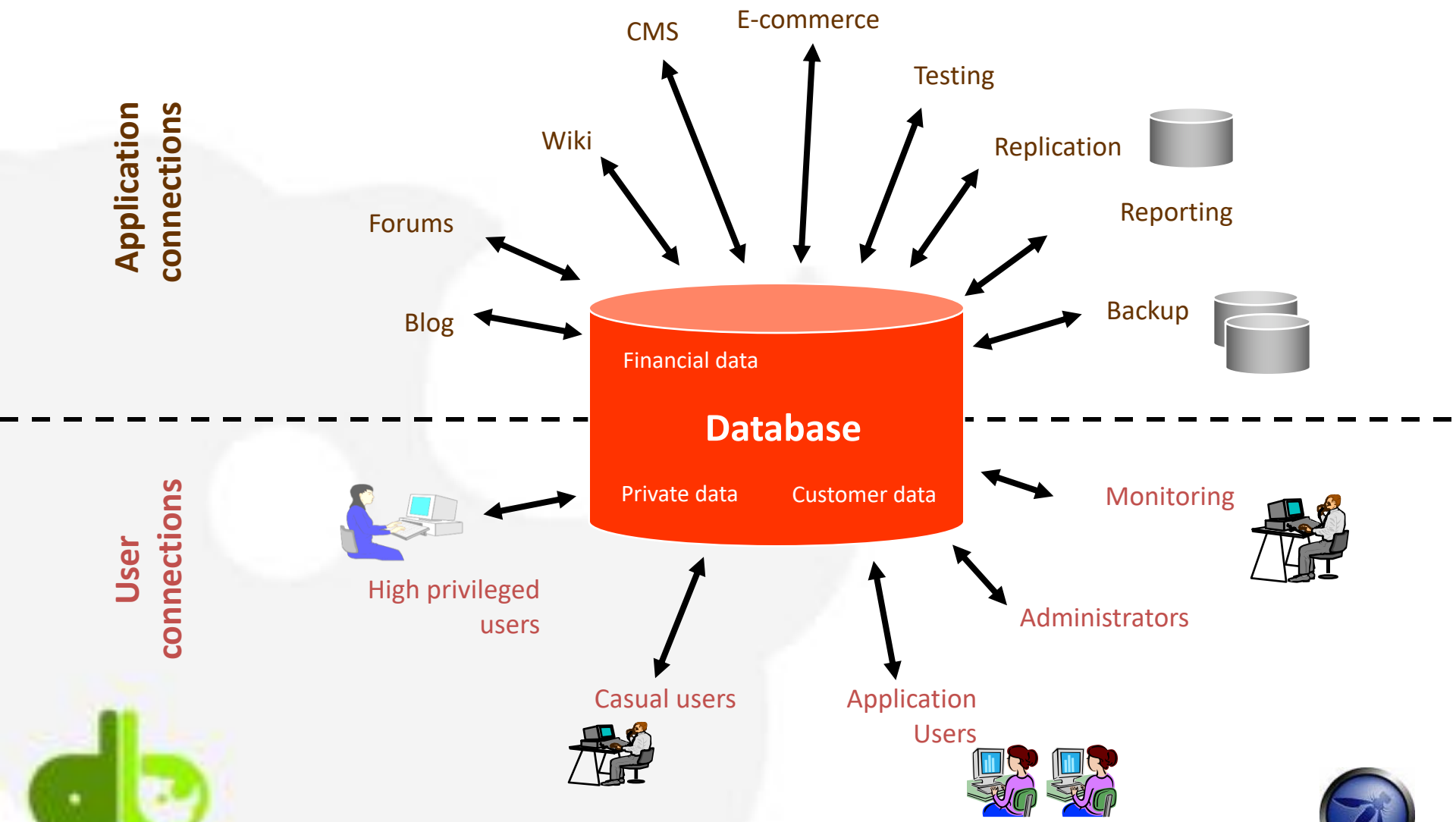
Pricelist

Address	$0.50
Phone number	$0.25
Unpublished phone number	$17.50
Cell phone number	$10
Date of birth	$2
Social Security number	$8
Driver's license	$3
Education	$12
Credit history	$9
Bankruptcy details	$26.50
Lawsuit information	$2.95
Sex offender	$13
Workers' comp history	$18
Military record	$35

Latest Victims

- Oct 2009 - One of **NASA**'s was vulnerable to a SQL injection attacks. All of this despite the fact that the agency's IT budget in fiscal year 2009 was $1.6 billion, of which $15 million was dedicated to IT security.
- Mar 2009 & Nov 2009 - SQL injection attack exposes sensitive customer data on **Symantec** web server.
- Nov 2009 - Russian cyber gang uses SQL injection attack crack deep inside the network of a giant **U.S. debit and credit-card processor**.
- Nov 2009 - An SQL injection flaw has been detected on the **Yahoo**! Website. The vulnerability was on the Yahoo job section.
- Dec 2009 - **Wall Street Journal** website, **Intel**, **Apple**

Who uses the Database ?



Using Shared Hosting Services ?
You are under attack !!!

- Hundreds of websites are on the same database server - **hundreds of attack vectors**

- If your neighbor's web site database is vulnerable, then so are you, no matter how carefully you've vetted your own code.

What is SQL Injection?

- **Legitimate Query:**

SELECT * from users

WHERE username = ‘admin’ and

password = ‘123’

- **Injected SQL code:**

SELECT * from users where username = ‘admin’

and password = ‘XXX’ or ‘1’=‘1’

SQL Injection after effect

- Bypass login page
- DOS - Deny of service
- Install web shell
- Iframe injection
- Access system files
- Install db backdoor
- Theft of sensitive information / credit cards
- Additional step of the attack:
  - Attack computers on the LAN

How iframe injection works

- Automated SQL Injection
- Injecting <iframe src=http://xxxxx.com>
- User visits infected site/page
- Trojan horse drive by installation
- Your PC is controlled by black hat hackers
  - Send SPAM
  - Records all login information
  - Records all transactions with bank websites
  - Online money transfer

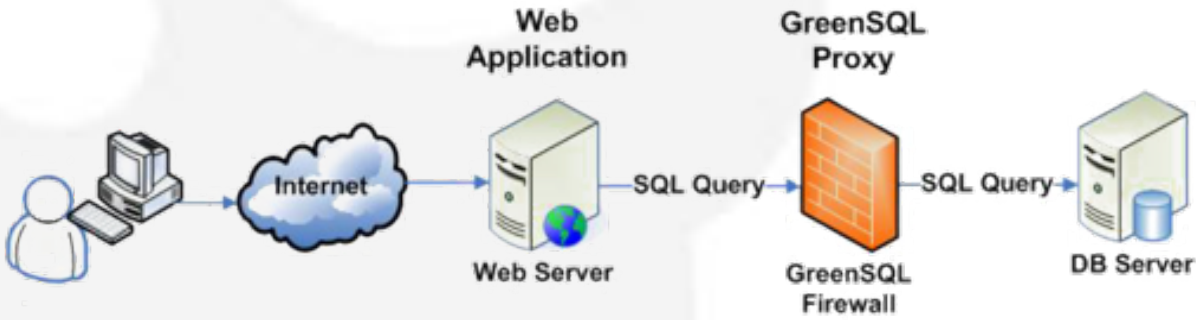
Buzus Trojan

GreenSQL History

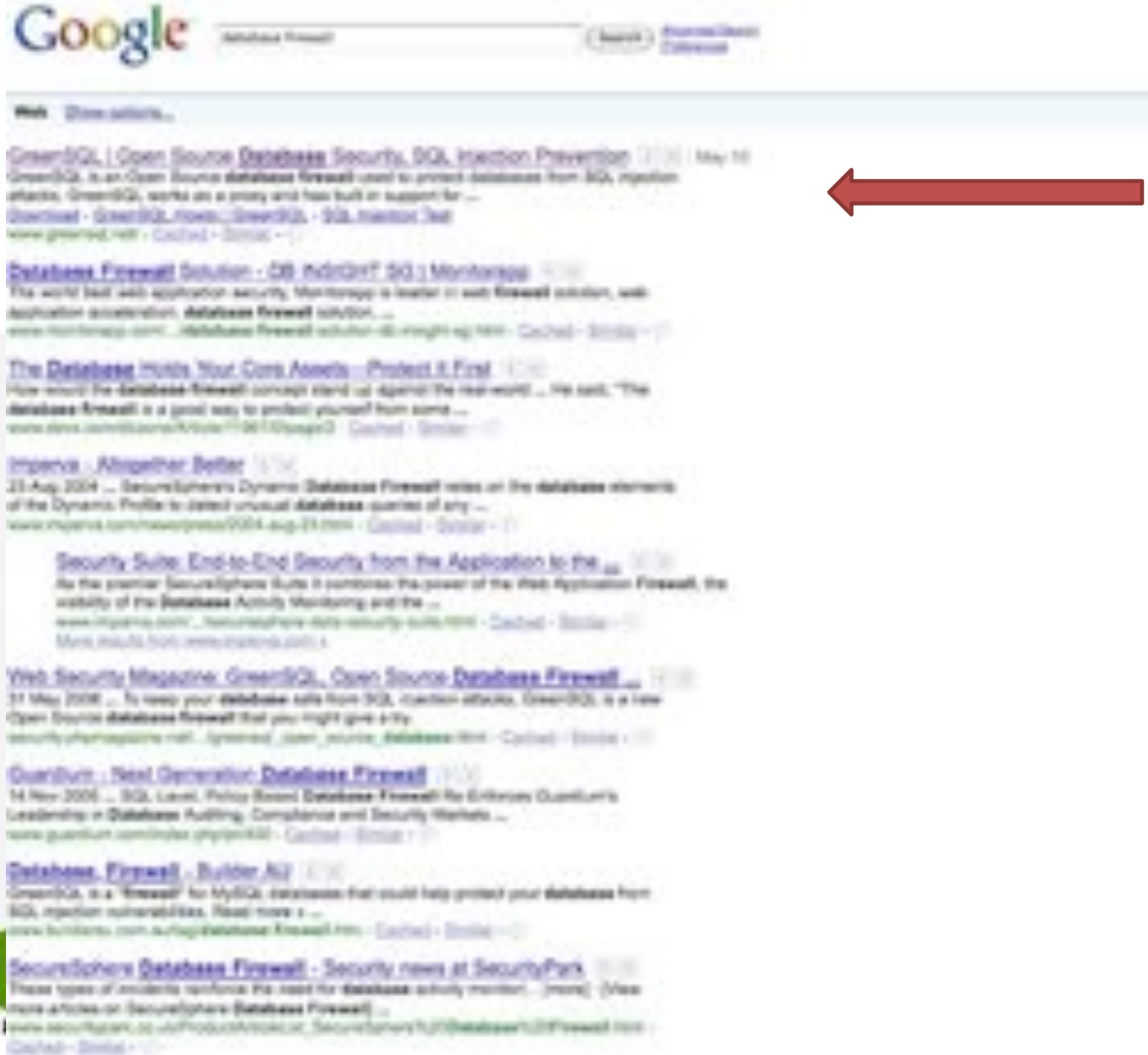
- Open Source project
- Started at 2007
- Hosted at sourceforce
- More than 30,000 downloads
- Version 1.2 - 3k downloads in it’s first month

What is GreenSQL

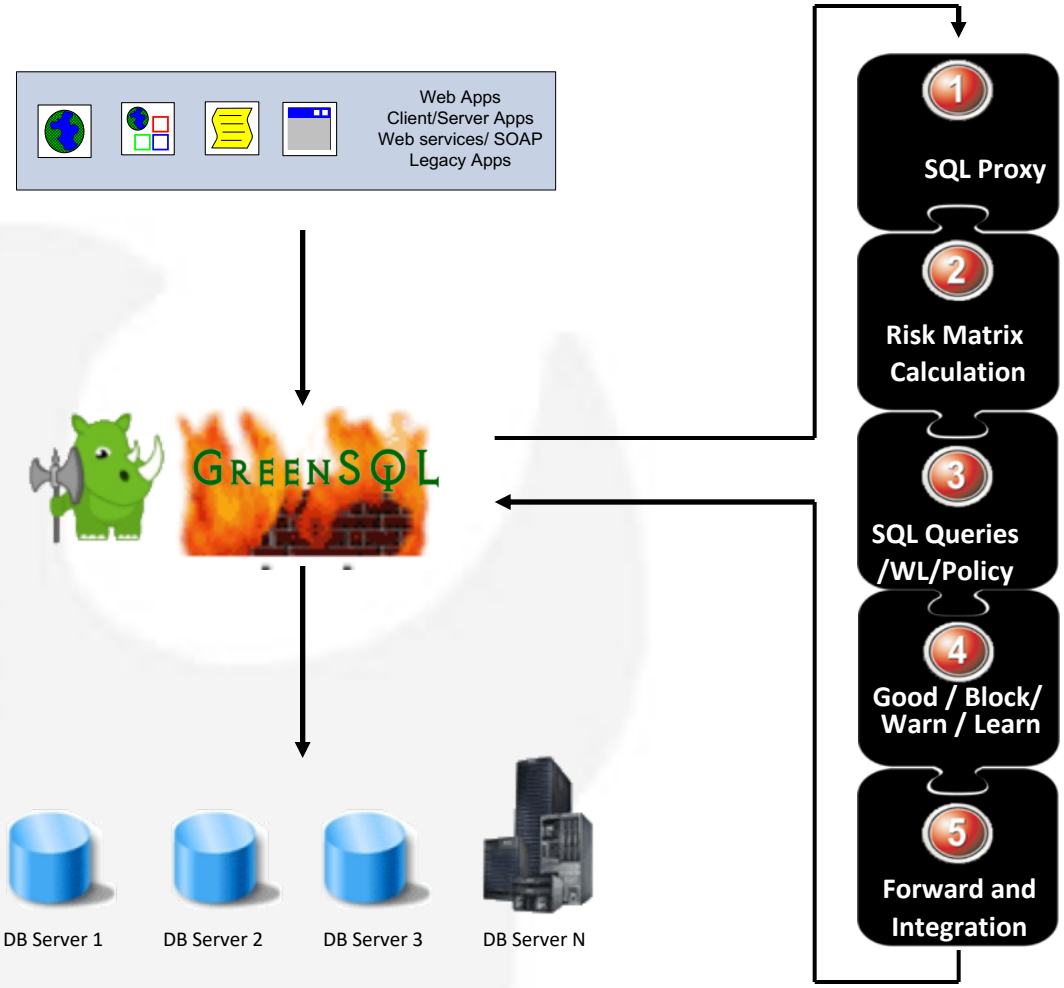
- GreenSQL is a database firewall solution
- Protects against SQL injections and other known and unknown Database attacks
- Cool web based management interface
- MySQL / PostgreSQL built in support




Google - Windows Internet Explorer
Norton
Web Images Videos Maps News Shopping Gmail more
Google
Database Firewall
Google Search
I'm Feeling Lucky
Advertising Programs - Business Solutions - About Google - Go to Google Israel
Done


Google
Web
GreenSQL | Open Source Database Security, SQL Injection Prevention
GreenSQL is an Open Source database firewall used to protect databases from SQL injection attacks. GreenSQL works as a proxy and has built in support for ...
Database Firewall Solution - DB INSIGHT SQ | Monitorapp
The world best web application security, Monitorapp is leader in web firewall solution, web application acceleration, database firewall solution, ...
The Database Holds Your Core Assets - Protect It First
How would the database firewall concept stand up against the real-world ... He said, "The database firewall is a good way to protect yourself from some ...
Imperva - Altogether Better
23 Aug 2004 ... SecureSphere's Dynamic Database Firewall relies on the database elements of the Dynamic Profile to detect unusual database queries of any ...
Security Suite: End-to-End Security from the Application to the ...
As the premier SecureSphere suite it combines the power of the Web Application Firewall, the visibility of the Database Activity Monitoring and the ...
Web Security Magazine: GreenSQL, Open Source Database Firewall ...
31 May 2008 ... To keep your database safe from SQL injection attacks, GreenSQL is a new Open Source database firewall that you might give a try.
QuantDB - Next Generation Database Firewall
14 Nov 2006 ... SQL Level, Policy Based Database Firewall Re-Enforces QuantDB's Leadership in Database Auditing, Compliance and Security Markets ...
Database Firewall - Builder AU
GreenSQL is a "firewall" for MySQL databases that could help protect your database from SQL injection vulnerabilities. Read more » ...
SecureSphere Database Firewall - Security news at SecurityPark
These types of incidents reinforce the need for database activity monitori... [more] [View more articles on SecureSphere Database Firewall] ...

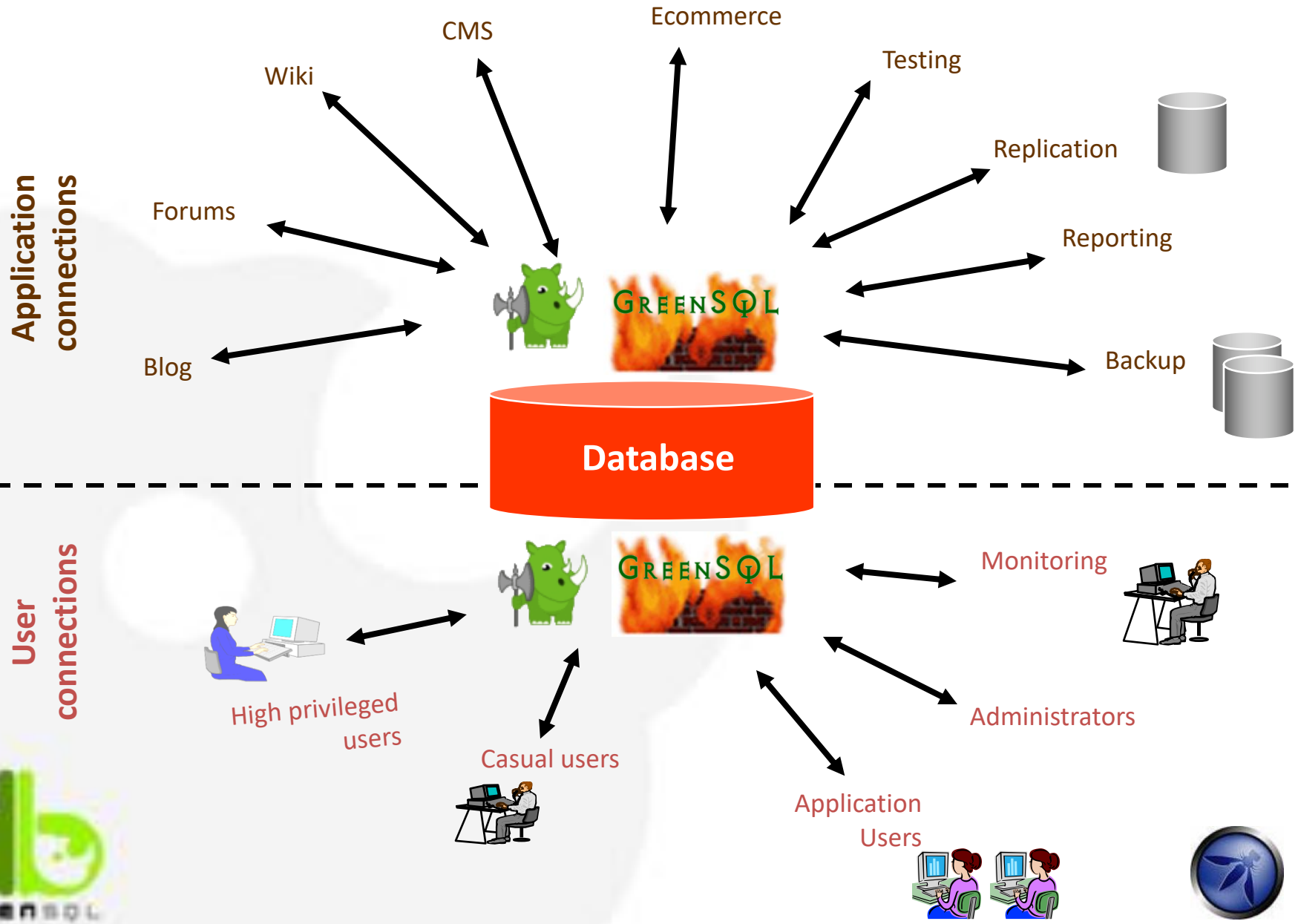
GreenSQL – High Level Architecture



How it works?

- Reverse Proxy
- Number of databases
- Number of backend DB servers
- Deployment options:
  - Can be installed together with the DB server
  - Can be installed on dedicated server / VPS

Using the Database Securely



GreenSQL management console

GreenSQL Database Firewall

Buy Advanced Support

DASHBOARD | DATABASES | ALERTS | SYSTEM | FORUMS | LOGOUT

Tips

Change Default Root Password

Stats

New Alerts: 4 Databases : 4

Latest Security Alerts

Date & Time	Proxy	Database	Description	Status
2010-01-04 11:07:20	Default MySQL Proxy	greendb	Query uses sensitive tables; Query has 'or' token; Query blocked because it is not in whitelist;	blocked
2010-01-04 11:06:41	Default MySQL Proxy	greendb	Query uses sensitive tables; Query has 'or' token; Query blocked because it is not in whitelist;	blocked
2010-01-04 10:47:33	Default MySQL Proxy	greendb	Query has comments; Query uses sensitive tables; Query blocked because it is not in whitelist;	blocked
2010-01-04 10:26:32	Default MySQL Proxy	greendb	Query has comments; Query uses sensitive tables; Query blocked because it is not in whitelist;	blocked

GreenSQL Twitter

Date & Time	Description
2009-12-07 05:32:57	Networking world calls GreenSQL and Early Gift for MySQL user
2009-12-06 10:20:07	More packages available at http://www.greensql.net/download
2009-12-02 20:07:21	providing, for the first time ever, PostgreSQL firewall solution!
2009-12-02 19:39:22	GreenSQL-FW: 1.2.0 has just been released!! many new features

Project News

Date & Time	Description
2009-10-19 14:55:21	GreenSQL-FW: 1.1.0 released
2009-04-09 14:12:29	GreenSQL-FW: 1.0.0 released
2008-11-25 21:13:53	GreenSQL-FW: 0.9.6 released
2008-10-24 23:30:33	GreenSQL-FW: 0.9.4 released

Multiple Databases / Proxies

GreenSQL Database Firewall

Buy Advanced Support

DASHBOARD | DATABASES | ALERTS | SYSTEM | FORUMS | LOGOUT

DATABASES | ADD DATABASE | ADD PROXY

help

List of Databases

ID	Database name	Db type	Proxy	Mode	Options	Delete
1	default mysql db		All Proxies	IPS	Overview | Alerts | Whitelist | Settings	Delete
2	no-name mysql db		All Proxies	IPS	Overview | Alerts | Whitelist | Settings	Delete
3	default pgsql db		All Proxies	IPS	Overview | Alerts | Whitelist | Settings	Delete
4	joomla	mysql	Default MySQL Proxy	Learning Mode fo	Overview | Alerts | Whitelist | Settings	Delete

List of Proxies

ID	Proxy name	Db type	Status	Options	Delete
1	Default MySQL Proxy	mysql	Active	Settings	Delete
2	Default PgSQL Proxy	pgsql	Active	Settings	Delete

Alert Example

View Alert Pattern

Pattern	select * from admin where name = ? and pwd=sha(?) or (? = ?);?
Alert ID	235
Time	2010-01-20 04:31:56
Listener	Default MySQL Proxy
DB	greendb

Add to Whitelist | Hide Pattern

Matching queries:

Query:	SELECT * FROM admin WHERE name = 'admin' AND pwd=SHA('') OR (1 = 1);')
Time:	2010-01-20 04:31:56
DB User:	
Risk:	105 blocked
Reason:	Query uses sensitive tables Multiple queries found Query has 'or' token True expression detected (SQL tautology) Query has empty password expression Query blocked because it is not in whitelist.
ID:	456

Remove Alert

GreenSQL Advantages

- Multiple modes
  - IDS/IPS / learning / Firewall
- Easy to use
- Pattern Recognition (signatures)
- Heuristics (risk calculation)
- Open Source

GreenSQL Advantages – Cont'

- Cross Platform (any Linux and Unix system)
- Rapid Deployment (pre built packages)
- Well established (30,000 downloads and counting)
- Web application independent
- The only free security solution for MySQL
- The only security solution for PostgreSQL
- User Friendly WEB GUI/Management tool

GreenSQL IPS / IDS

- Sensitive tables
- Multiple queries (; / UNION)
- SQL comments
- Empty password
- SQL tautology - true statements (1=1)
- Administrative commands
- Information disclosure commands

But, I'm a kick ass developer
So why should I use GreenSQL

- Legacy code
- Not only Web application and web services use your database
- Protects the database console access
- 0 day database attacks prevention
- No direct access to the database machine

GreenSQL: Demonstration

http://demo.greensql.net/

http://www.greensql.net/sql-injection-test

Open Source Roadmap

- Native Joomla / Drupal / Wordpres plugins
- Integrated GreenSQL Console as CMS plugin (you will use Joomla Admin to manage GreenSQL)
- Web user name / IP address reporting in GreenSQL alerts
- Auditing

GreenSQL Support Program

- Installation Support
- GreenSQL Optimization
- E-mail Submission

- Consulting
- Service portal
- Software Updates

Questions

Thank You

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