# Intelliwall

Présentation OSSIR - 14/09/2004

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## Web Application Gateway


Web Application Security

# Introducing Bee Ware

**History**

- Founded in November 2003 by Nicolas Dirand, Creator of Qualys and Christophe Guyard, Former President of Axians, one the Largest French Network and Security Integrators.
- Headquartered in Paris with R&D facilities in Aix en Provence
- International Headquarters in Brussels.

**Strong Business Model**

- Technology Innovation
- Strong Channel Partnership
- Technological Partnership

**Mission**

- Secure Web-Based applications by a tailored and comprehensive Firewall Web Application Technology protecting Web-sites from known and unknown attacks.

**Customers**

- Among the Fortune 1000 customers, Bee Ware has won major references in the Finance, E-Business and Transportation Industries.

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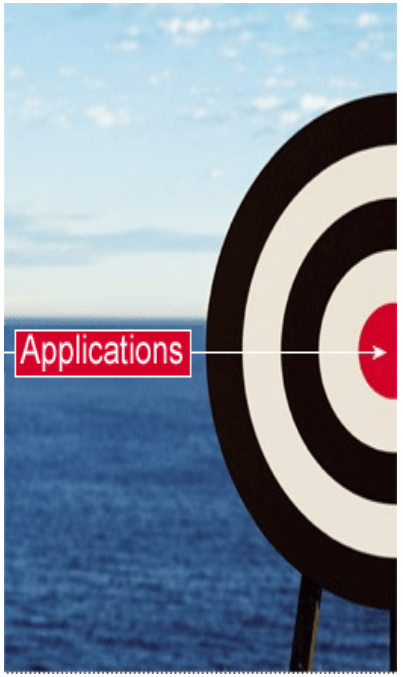
# Web servers: The Hackers Premium Target

Web services are the leading technology for value added services

HTTP is one of the only protocols allowed to pass through the internet firewalls




Deploying Internet, Intranet or Extranet technologies is a Business Enabler

Firewall and Intrusion Prevention Products efficiently protect the network and system layers through centralized access control mechanisms

defacement

content stolen

deny of service

backdoor

resources rerouting

Web applications rely on many languages, scripts, libraries… there are infinite possibilities for discovering vulnerabilities

Customers' data, market and finance figures, and a lot of confidential information are within reach for malicious users

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# Application attacks are real life

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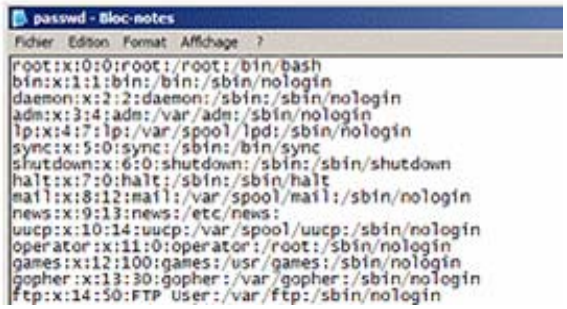
The Web components have not been designed with security concerns in mind.


**… unexplained system crash… stolen or corrupted data… backdoor to the internal network… resources rerouting…**

*The existence of an application attack often remains unrevealed.*

Web technologies are popular and affordable. Publishing or manipulating information becomes quite easy, for both programmers and hackers.

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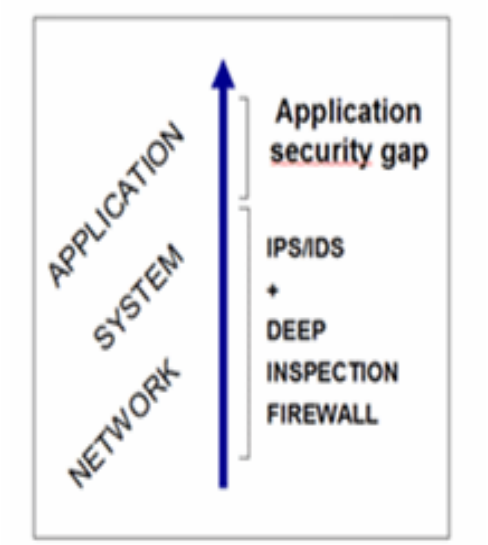
# Network, System and Web security

## Network

Attacks target the protocol level : IP Spoofing, TCP-Based Attacks...
Firewalls and strong authentication are the most common answer, providing access control security.




## System

Systems are typically targeted using openly disclosed vulnerabilities (such as they are found in MSRPC, IIS, Cisco IOS and many other systems etc).
Secured by intrusion detection, monitoring, patch management.

## Web

HTTP is a connectionless, open and permissive protocol. Securing Web servers is not only about HTTP. Web applications also include HTTPS, PHP, CGI, Perl, XML, SOAP...

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# Application Access Control

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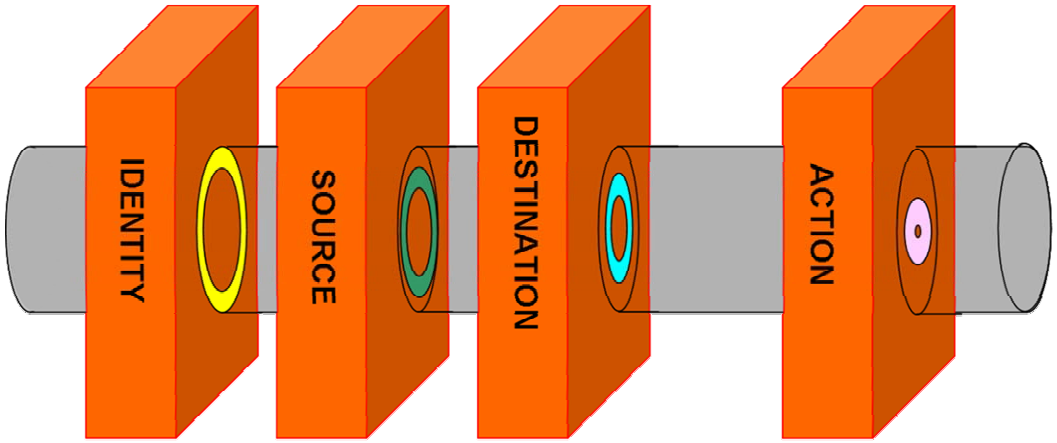
| | |
|---|---|
| Application | Malicious requests detection |
| System | Vulnerabilities prevention |
| Network | Identity checking and protocol filtering |

**Network Access Control** **Application Access Control**




**Filtering on the action intention for application access control**

Hackers already know that existing security infrastructures are unable to understand Applicative queries. None of these security solutions can pit effectively against attacks at the application layer.

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# Understanding the application diversity,

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The application layer :

A multi component layer.

User's developments

Languages & Scripts

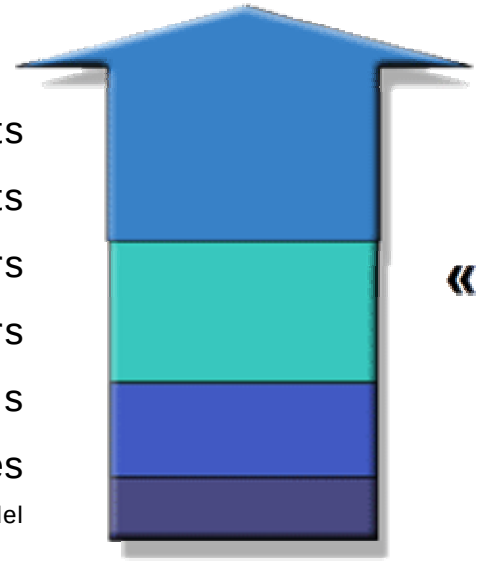
Applications Servers

Web Servers

Operating systems

Application services

Application Layer –OSI model



**« APPLICATIONS »**

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# ...to figure out the risks.

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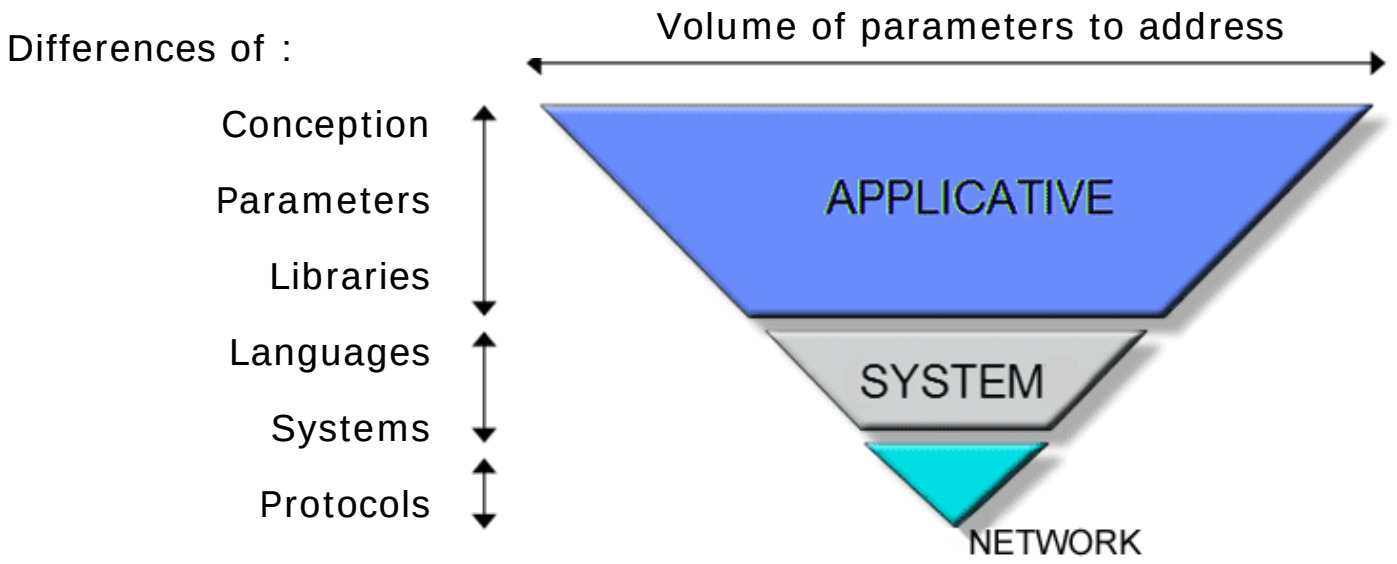
## Potential for application vulnerabilities is endless



# Diversity is Endless.

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## Is determinism…

***Applied on Web security,***
***still a quality criteria ?***

Adapted to low layers…

*These areas can be considered as identified and under control.*

Relevant for an unknown perimeter…

*The potential of vulnerabilities is boundless*

Constraints are more and more increasing

*Knowing ALL that's forbidden, ALL that's authorized, and knowing it ALL the time ??*

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# OWASP Top Ten



## Top Ten Vulnerabilities

### 2004 update

| | |
|---|---|
| A1 | Unvalidated Input |
| A2 | Broken Access Control |
| A3 | Broken Authentication & Session Mngt |
| A4 | Cross Site Scripting Flaws |
| A5 | Buffer Overflows |
| A6 | Injection Flaws |
| A7 | Improper Error Handling |
| A8 | Insecure Storage |
| A9 | Denial of Service |
| A10 | Insecure Configuration Management |

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# Market and Analysts review

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**ANALYST REPORT:**

**Web Application Gateways bolster security.**
WAG appliances are just emerging… This youthful technology has a rosy future as WAG vendors learn to reduce the amount of IT work required to configure application security policy.

Yankee Group 02/2003

**Rethinking IDS**
"Aside from IPS, another category to consider for specifically protecting Web servers and other DMZ applications is a Web application firewall."

CSO online 03/2004

**Application Gateways will become the darling of enterprise security architectures.**
Firewall devices from Cisco, Check Point, Netscreen and Symantec will enforce the protocol structure but will need to be backed up by layer 4-7 inline application gateways to enforce application business logic.

Yankee Group – 2004 Predictions

Today over 70% of attacks against a company's network come at the « Application Layer », not the Network or System Layer.

Gartner Group

**Forget about patches**
*Researchers at the Florida Institute of Technology are looking for ways to fight hackers by modeling their methods, or "exploits." The research could eventually lead to new types of security tools capable of stopping attacks that hackers haven't even invented yet.*

*Computerworld March 2004*

**Network-layer security mechanisms dominate current deployments but are proving inadequate in the face of more frequent application layer attacks.**

**META Group**

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# Technologies & Solutions overview

# Marketing & technological competitions

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**Marketing**
The current traditional security players have to preserve their market shares…Whether they have a solution or not.

**Technology**
How should the web application security problem be addressed ?
With a solution based on : Traditional security concepts… a current technology enhancement… or an innovative concept ?

**User satisfaction**
How to fill the security gap, with accuracy but without increasing additional administration tasks overload.

**!!! Customers have been warned by the bad IDS experience !!!**

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# Alternatives

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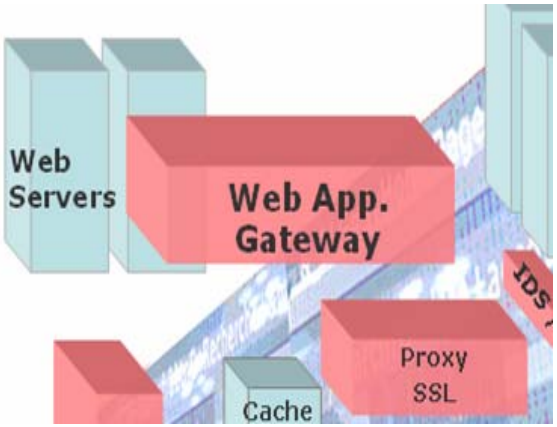
**Many technologies and solutions pretend to secure the application level.. And that's partly true.**

**But considering the accuracy, the performance, the management tasks… the gap between security needs and reality becomes a growing issue.**




Reverse Proxy alternative : poor level performance, time consuming and inappropriate configuration tasks.

Deeper inspection : secured, but partial inspection. High expertise required for the security administrators.

New approaches : **Intelligence**

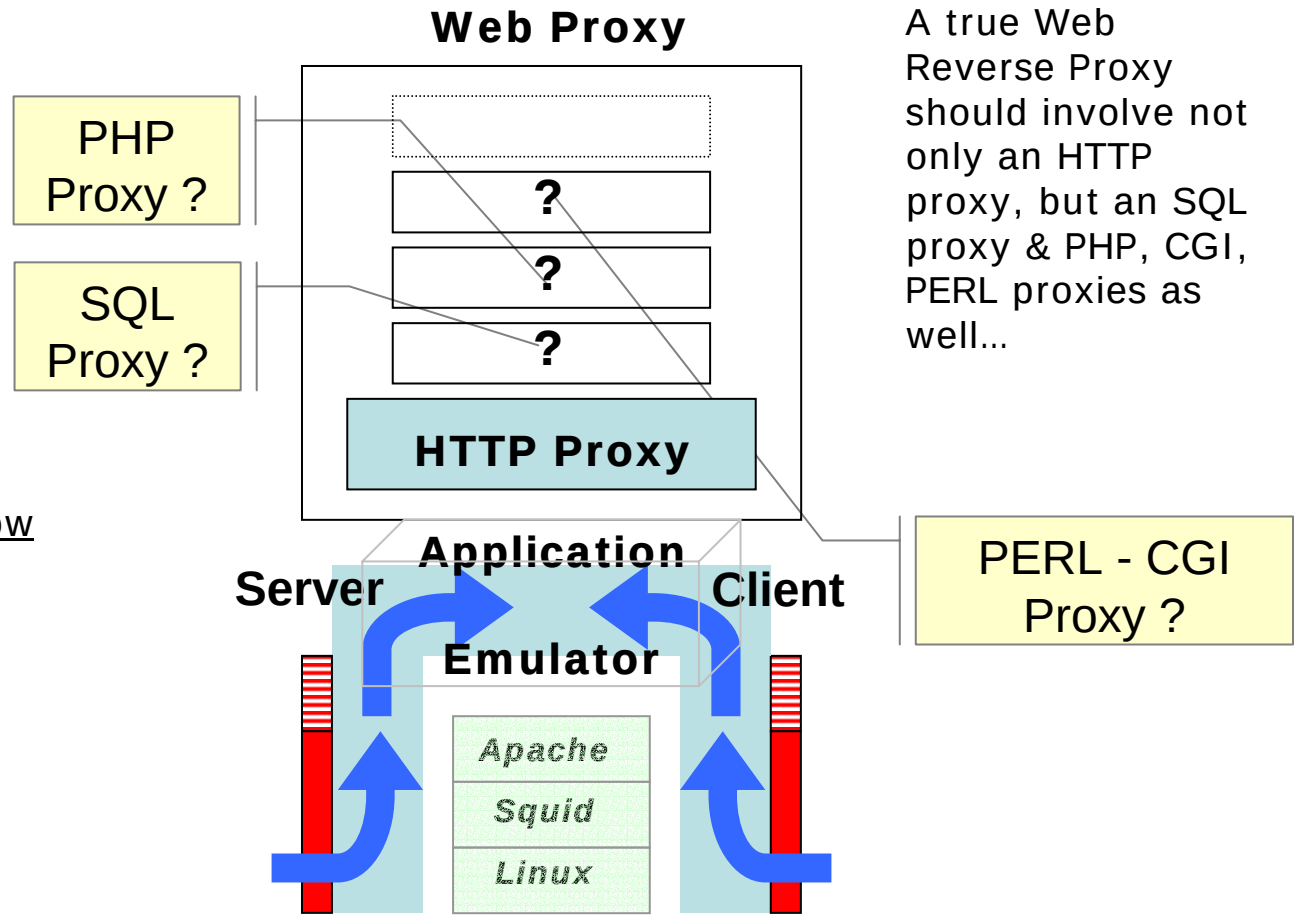

# Proxy and Reverse Proxy

How does it work ?

Is a proxy an application security device ?

*Once upon a time,*
*at the early ages of security...*

# HTTP Proxy isn't Web Proxy


A true Web Reverse Proxy should involve not only an HTTP proxy, but an SQL proxy & PHP, CGI, PERL proxies as well...

The Proxy concept is slow (Client & server emulation).

There can easily be breaches in the components or implementation of a Proxy.

*Proxy architecture is poor in performance*

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# HTTP Proxy is just a platform

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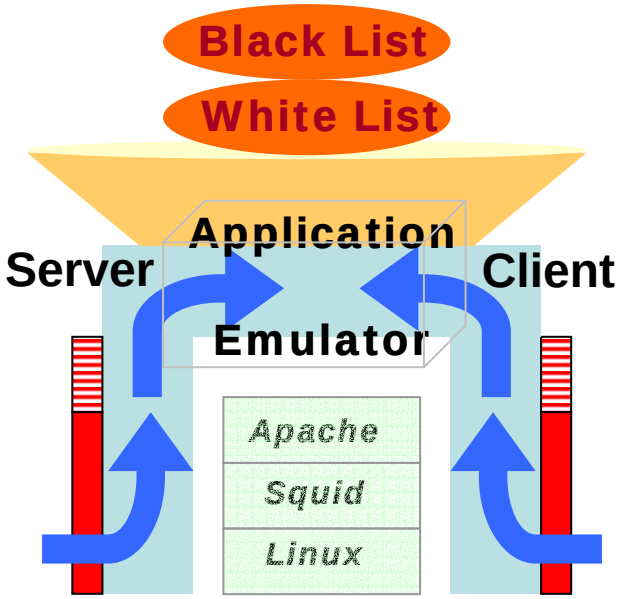
In the Reverse Proxy model, the application security is achieved by a very basic White List concept.

An HTTP Reverse Proxy has to rely on others mechanisms in order to provide an in depth application analysis.




**Key question is : Which is the best technology to protect the application ?**

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# The White List approach

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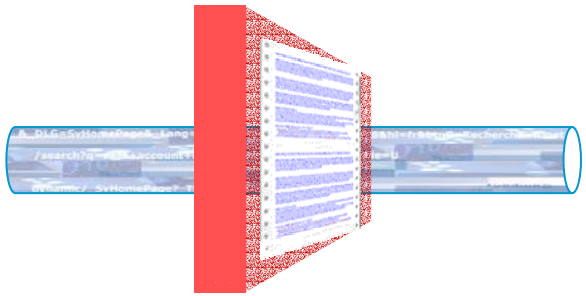
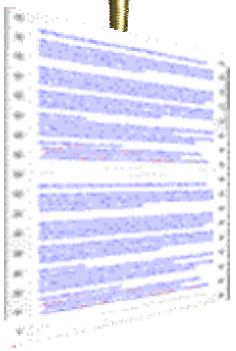
It's a very
basic & simple concept…

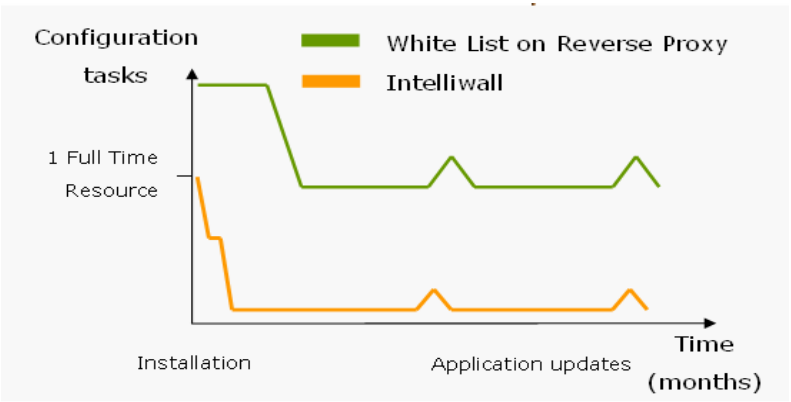
**White List**



but which introduce a much more complex issue :

?






Despite the help of discovery tools, a White List approach is a complex process (to develop, maintain and exploit) which should be cautiously evaluated before being deployed.

*White List security only rely on user's efforts*

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# Product Introduction

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# Intelligent Technology Embedded

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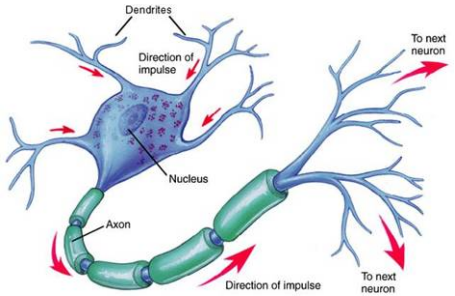


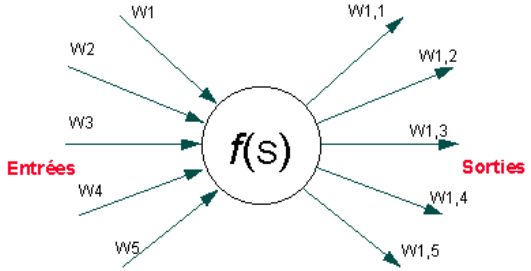


"Aorccodnig to a rcneet sruevy form the Cmarbgdie Uinrevstiy, how the leettrs are aarrgned wthiin a wrod hsna't a big ipomrtcane. The haumn bairn ins't bsaed on a scuh lniaer raednig. Pciknig up the msot rlevenat sgins is eoungh, and qiukcer, to sohw us the maennig of the wolhe wrod and snenetce."

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# Neural network

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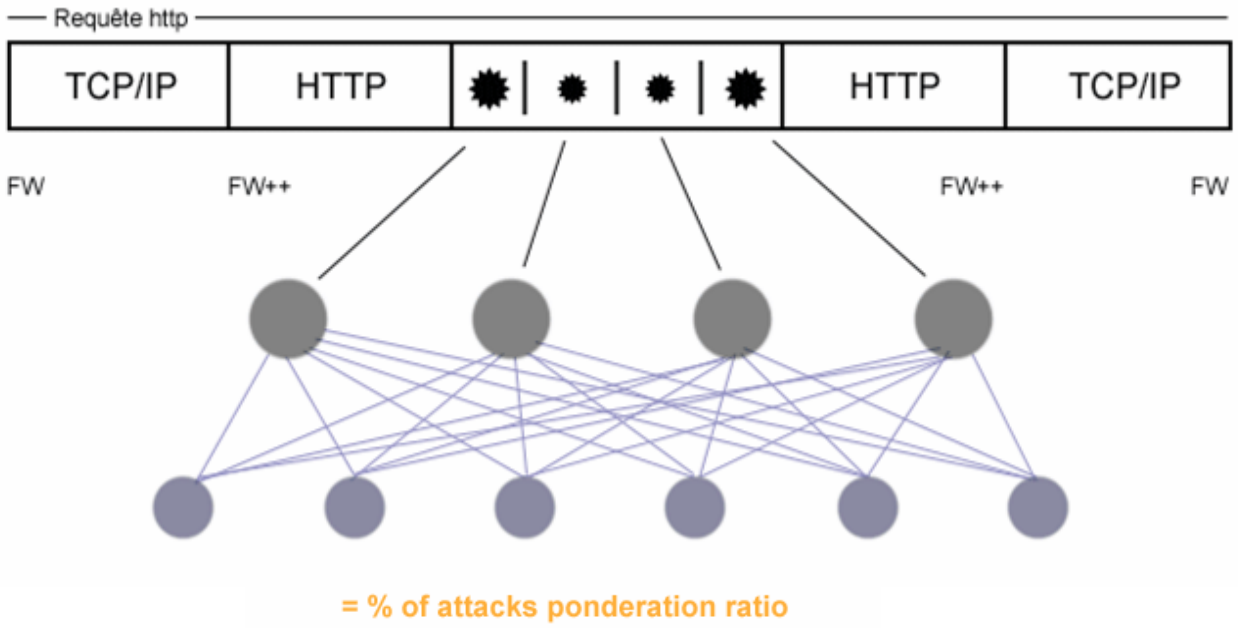
Intelliwall mimics the human approach, using its analysis and its expertise.




The neural network technology, already used in some applications like character recognition, content filtering or financials assessments, provides a “fault tolerant” reading of the traffic.

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# Adaptive recognition

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One of the main strengths of Intelliwall's neural kernel is its capability to detect the "intention" of a query through the instant interpretation of evidences


The efficiency of our solution does not only rely on neural networks but on the way we adapted this technology to meet Security needs and culture. The intelligence comes from the recognition skill (position of the sensors) and training capabilities.

.

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# Intelligence based on training


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Pre-training + on-site training

-> 0 Falses positives

Regular Traffic


Attacks & malicious traffic

Approved requests


Forbidden requests


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# Web site access profile


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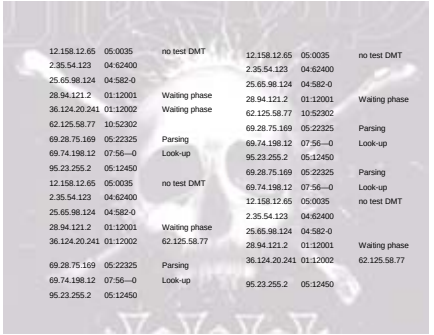

| | | | | | |
|---|---|---|---|---|---|
| 12.158.12.65 | 05:0035 | no test DMT | 12.158.12.65 | 05:0035 | no test DMT |
| 2.35.54.123 | 04:62400 | | 2.35.54.123 | 04:62400 | |
| 25.65.98.124 | 04:582-0 | | 25.65.98.124 | 04:582-0 | |
| 28.94.121.2 | 01:12001 | Waiting phase | 28.94.121.2 | 01:12001 | Waiting phase |
| 36.124.20.241 | 01:12002 | Waiting phase | 62.125.58.77 | 10:52302 | |
| 62.125.58.77 | 10:52302 | | 69.28.75.169 | 05:22325 | Parsing |
| 69.28.75.169 | 05:22325 | Parsing | 69.74.198.12 | 07:56—0 | Look-up |
| 69.74.198.12 | 07:56—0 | Look-up | 95.23.255.2 | 05:12450 | |
| 95.23.255.2 | 05:12450 | | 69.28.75.169 | 05:22325 | Parsing |
| 12.158.12.65 | 05:0035 | no test DMT | 69.74.198.12 | 07:56—0 | Look-up |
| 2.35.54.123 | 04:62400 | | 12.158.12.65 | 05:0035 | no test DMT |
| 25.65.98.124 | 04:582-0 | | 2.35.54.123 | 04:62400 | |
| 28.94.121.2 | 01:12001 | Waiting phase | 25.65.98.124 | 04:582-0 | |
| 36.124.20.241 | 01:12002 | 62.125.58.77 | 28.94.121.2 | 01:12001 | Waiting phase |
| 69.28.75.169 | 05:22325 | Parsing | 36.124.20.241 | 01:12002 | 62.125.58.77 |
| 69.74.198.12 | 07:56—0 | Look-up | 95.23.255.2 | 05:12450 | |
| 95.23.255.2 | 05:12450 | | | | |

A **User black list policy** prevents any hacker from proceeding to a step by step analysis of the site

## Profiling the Web Site

The profiling feature is based on the powerful RegExp expression model.

This provides the ability to restrict access to the dev or back-up folders of the site.

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# Application security policy

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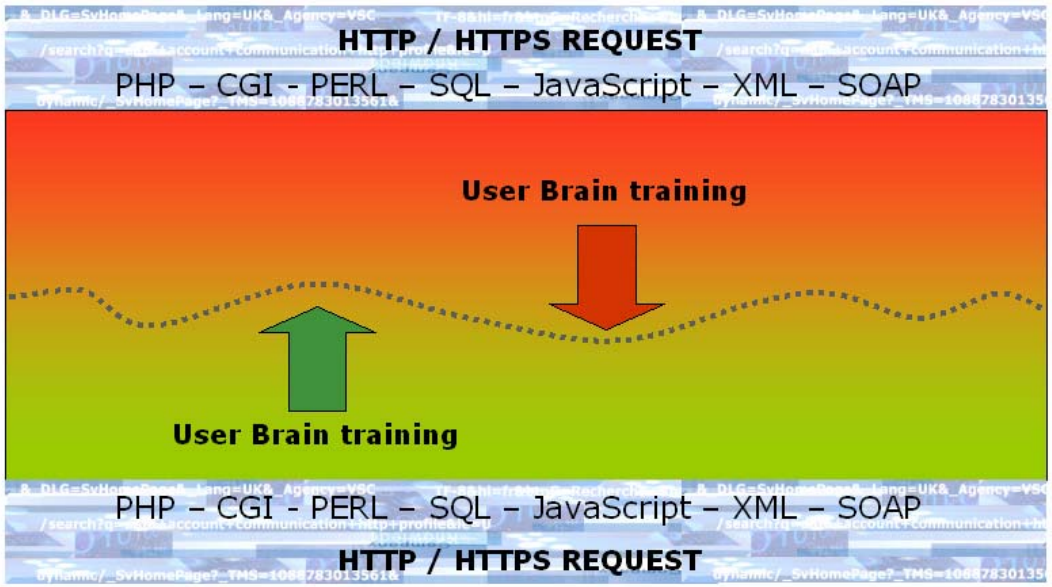
Any security solution needs to allow a customer policy customization in order to be accurate and effective.

Applicative security policy deals with protocol but with languages as well.

System security policy includes both authentication, open services, and vulnerabilities prevention.

Network security policy is based on identity, origin and destination, protocols and ports.

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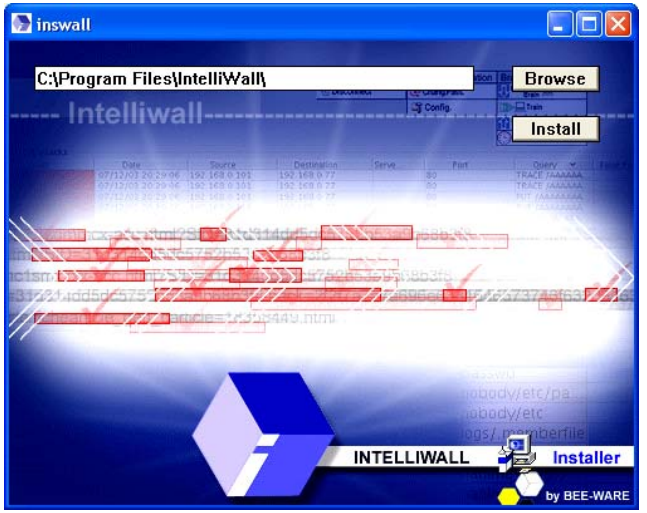
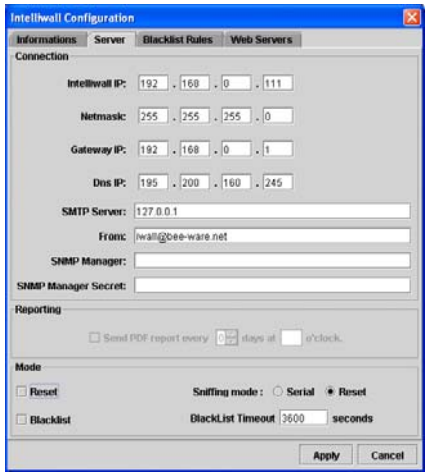
# Intelliwall client

Intelliwall client is based on Java. It can run on any platform supporting Java (Windows, Unix, Linux, Mac...)




Configuration and set up are just a few clicks. In just a few minutes, Intelliwall footprints the traffic and is ready to proceed.

The Intelliwall client installer is very simple to run. Java run-time is included and auto-installed (if needed)

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# Intelliwall G.U.I.

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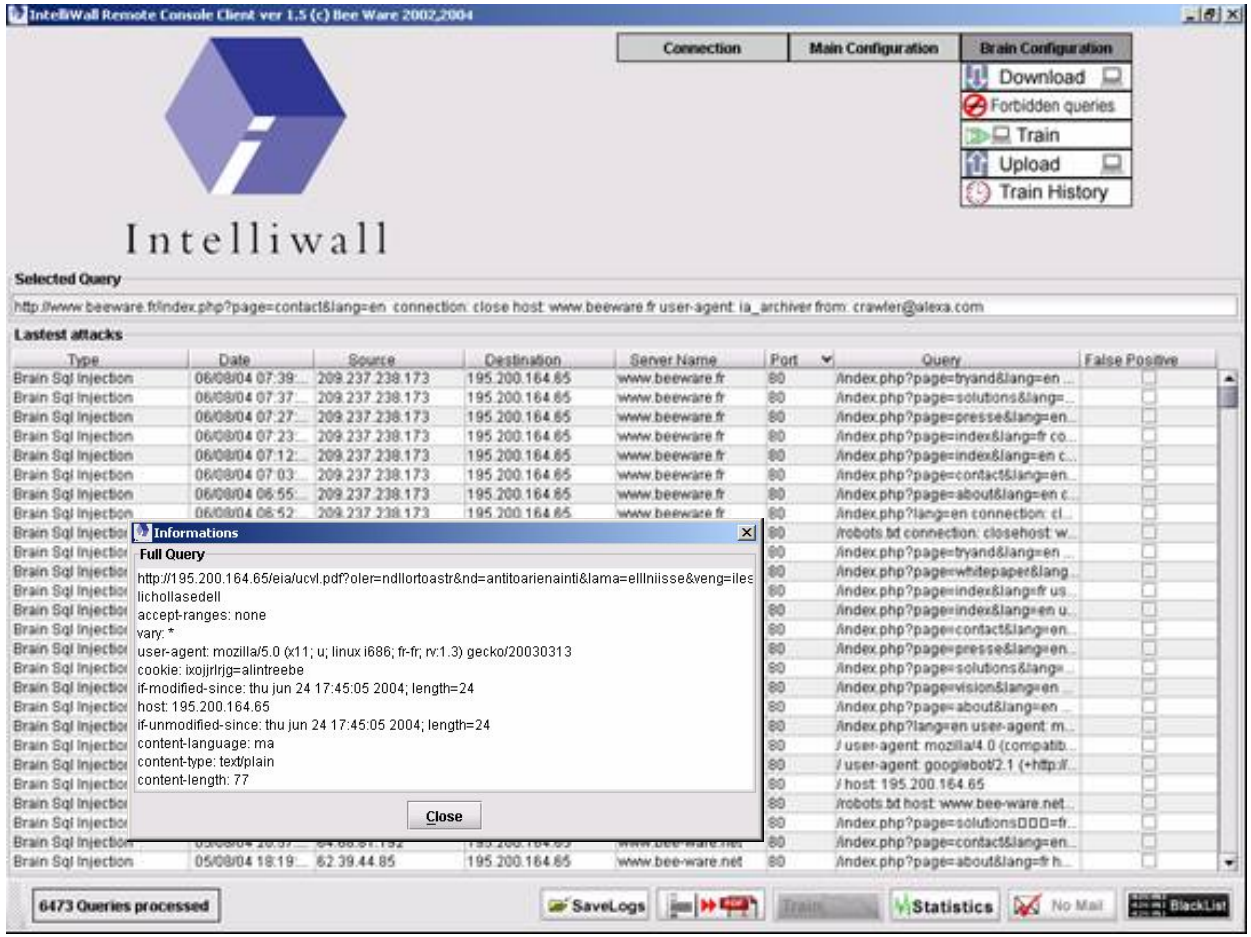
- ✓ Real time traffic monitoring
- ✓ Train Brain
- ✓ Brain back-up
- ✓ Exclusions
- ✓ Reporting

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# Monitoring & Reporting

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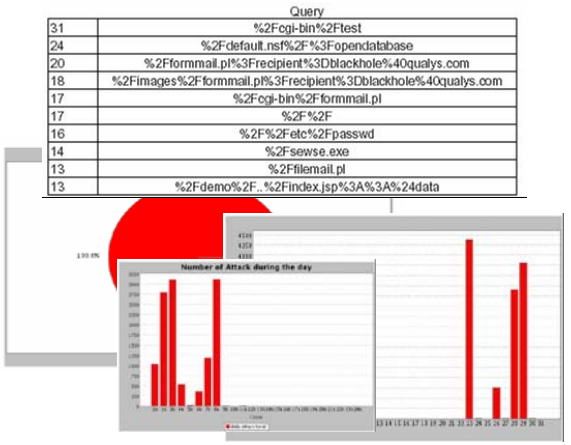
- Real time monitoring features
- Logs and reports

**Monitoring :**

- Graphic User Interface
- SMTP Trap alarms
- MAIL SMTP alarms





**Reporting :**

- Syslog client
- Logs export XML format
- Logs export CSV format
- Printable reports (PDF) with scheduler

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# Training steps

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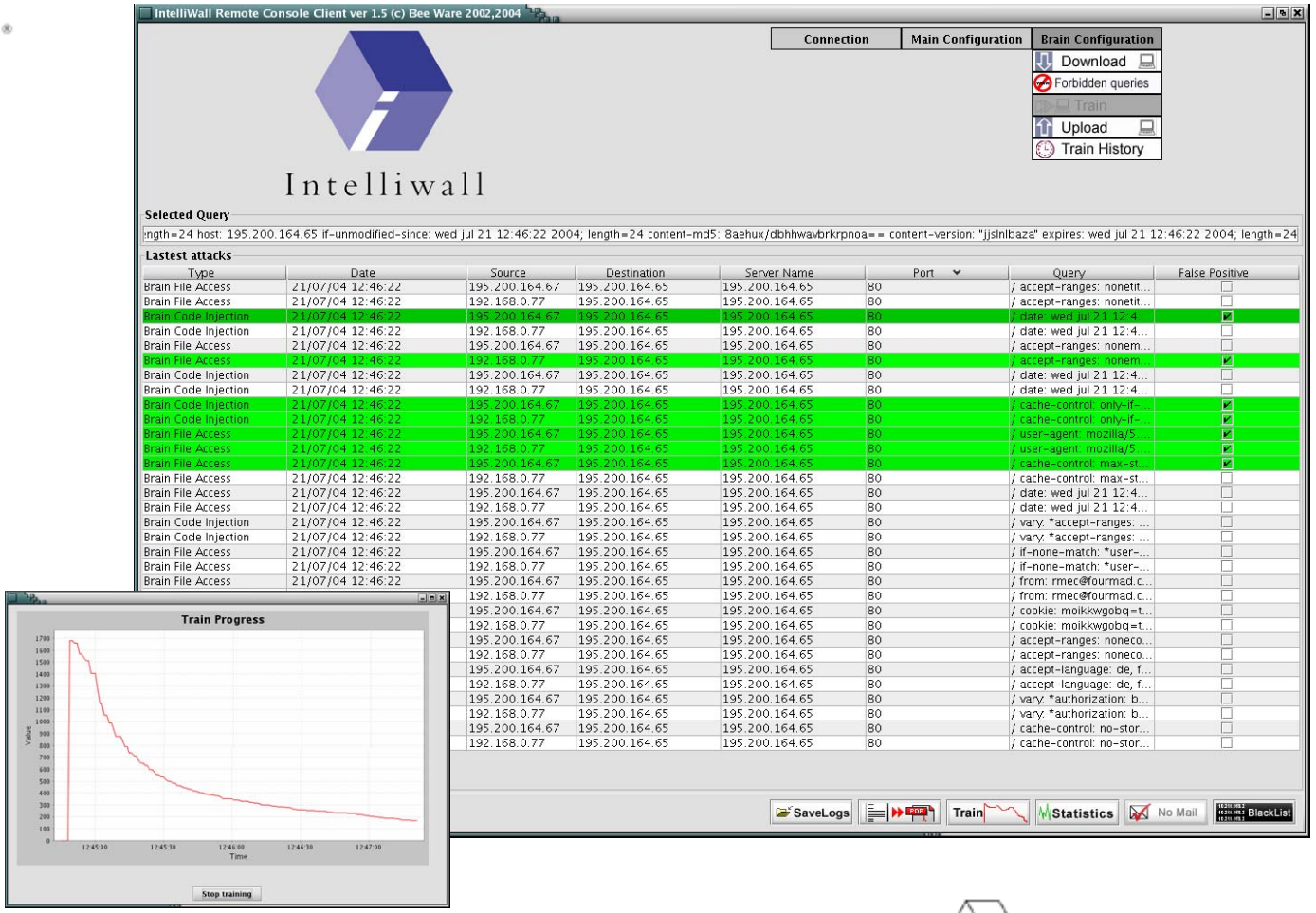
- Select the legitimate queries
- Click on the Train button
- A train progress window will keep the administrator updated

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# Serial or // connection

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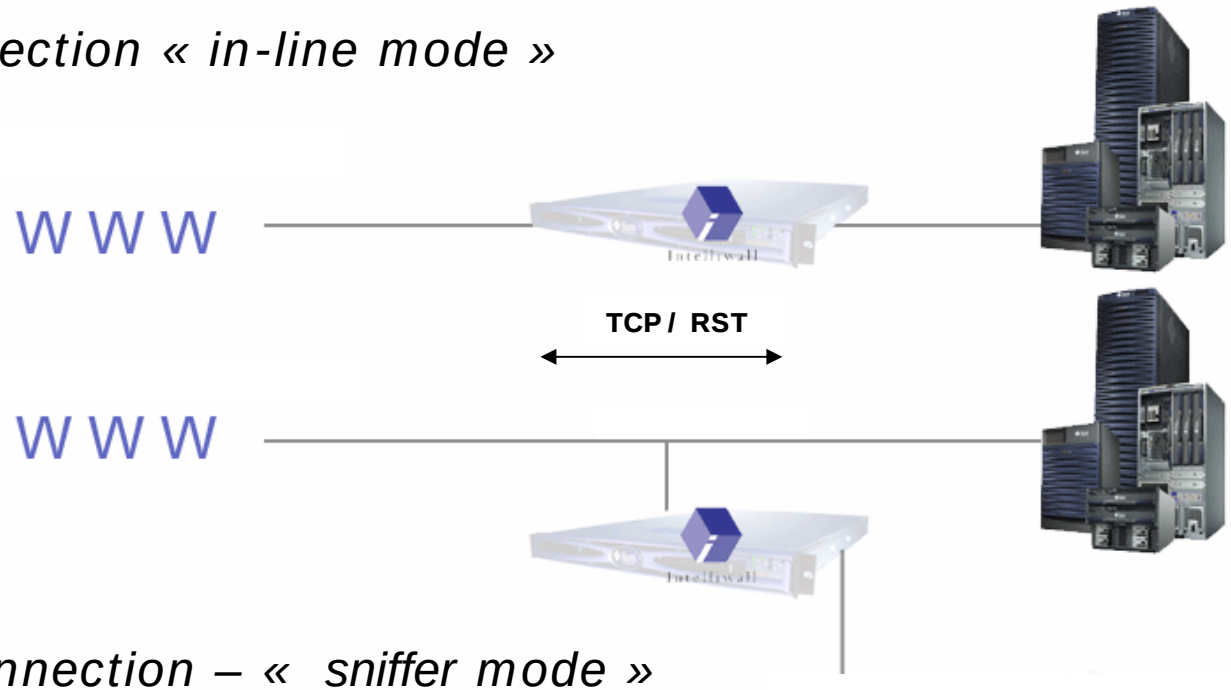
## Easy to plug-in any architecture

*Serial connection « in-line mode »*




*Parallel connection – « sniffer mode »*

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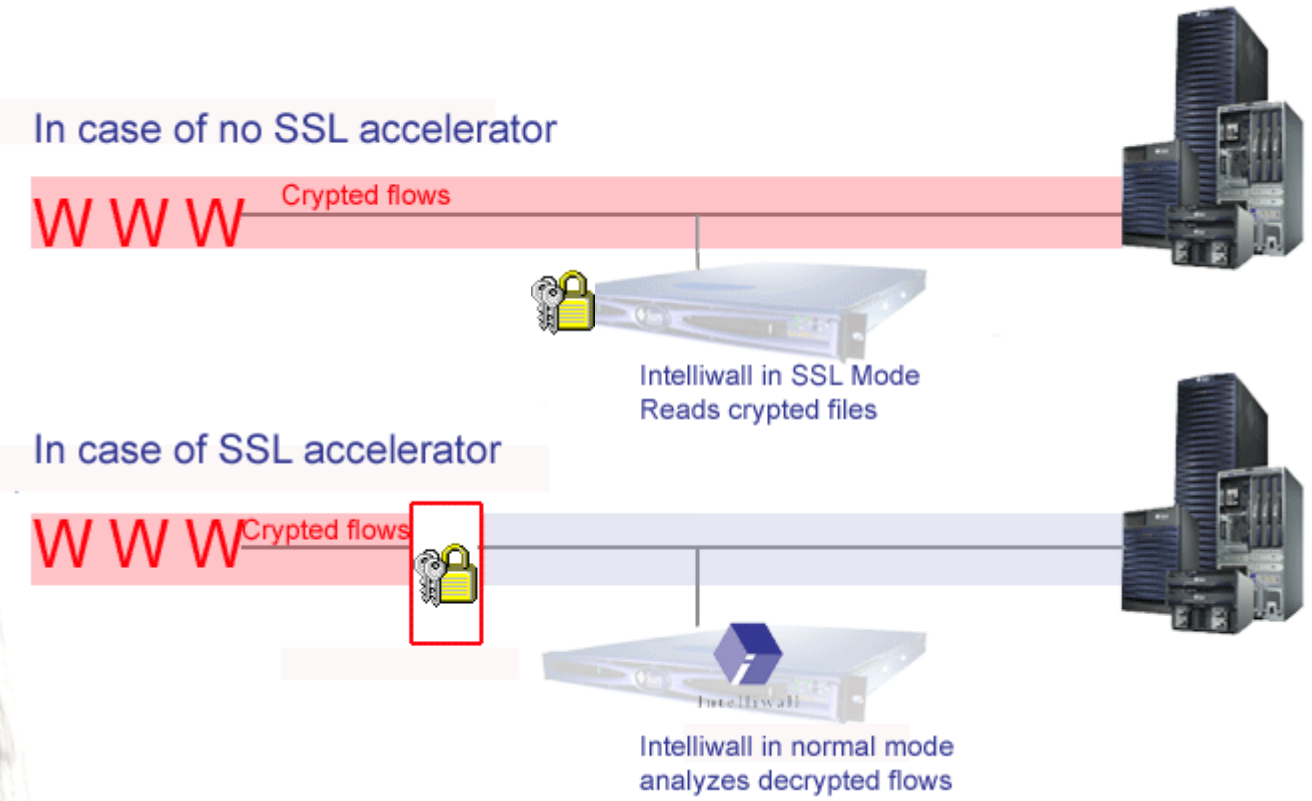
# SSL architectures

## HTTPS support



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# An administrator friendly solution

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**Heavy and repetitive tasks make a security product impossible to manage and unable to perform its goal.**

**Intelliwall management tasks are “light”:**

application independent

**accuracy**

no signature file nor WL/BL

- Configuration
  - Address setting
  - Alarms setting
- Monitoring
  - Exclusions adjustment
  - Brain train (close to 0 after a couple of days)
- Updates
  - Minor releases & patches (automated)
  - Major releases

**Fast and efficient**.

Such as the dialog between two experts.

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# Product Summary

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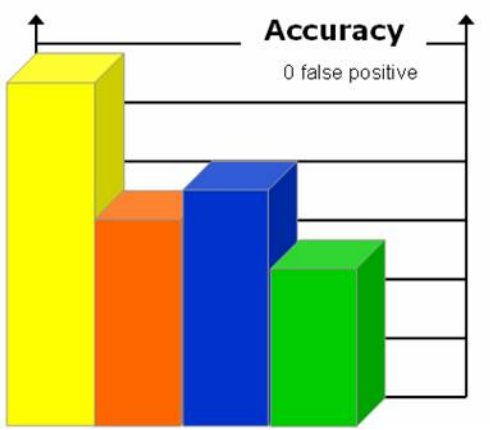


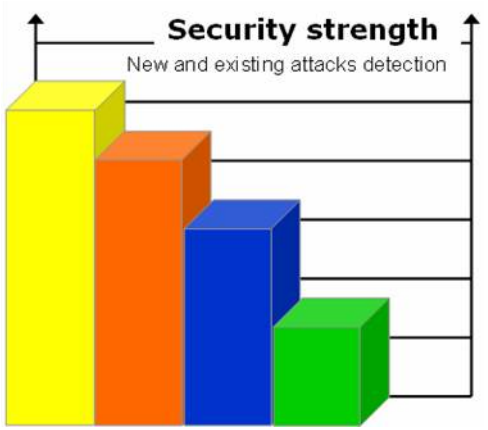


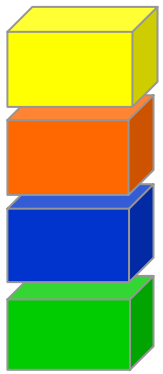

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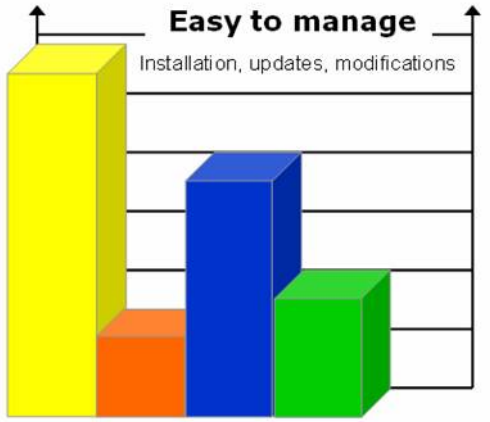
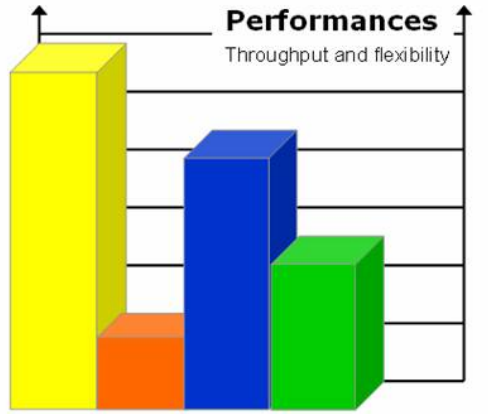
Reverse Proxy

Correlation

Deep Inspection

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# The “Try & Buy” program

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## Intelliwall is Easy to Try

- Non disruptive. Intelliwall is plugged in passive mode and just listen to the traffic.
- No configuration. Just a few parameters regarding the Web server to be protected.
- Immediate result. Just after being plugged in front of a Web site, Intelliwall starts working and detects all the suspicious requests.
- Proof of concept. Using the Training facility, customers will be able to reach the 0 Falses Positives challenge in a couple of days.

## How to subscribe ?

- An Intelliwall “Try” is just one week long, it’s easy to plan and will not be time consuming.
- Identify a Web application to be monitored by Intelliwall with a significant traffic.
- Involve the application developers, or ask for the Bee Ware support, in order to look at the application structure, and to demonstrate how Intelliwall secures the application.
- A report will be made following the “Try”, including comments about the traffic, the potential breaches, and the Intelliwall response.

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