FASTER, *BETTER* & *Smarter*

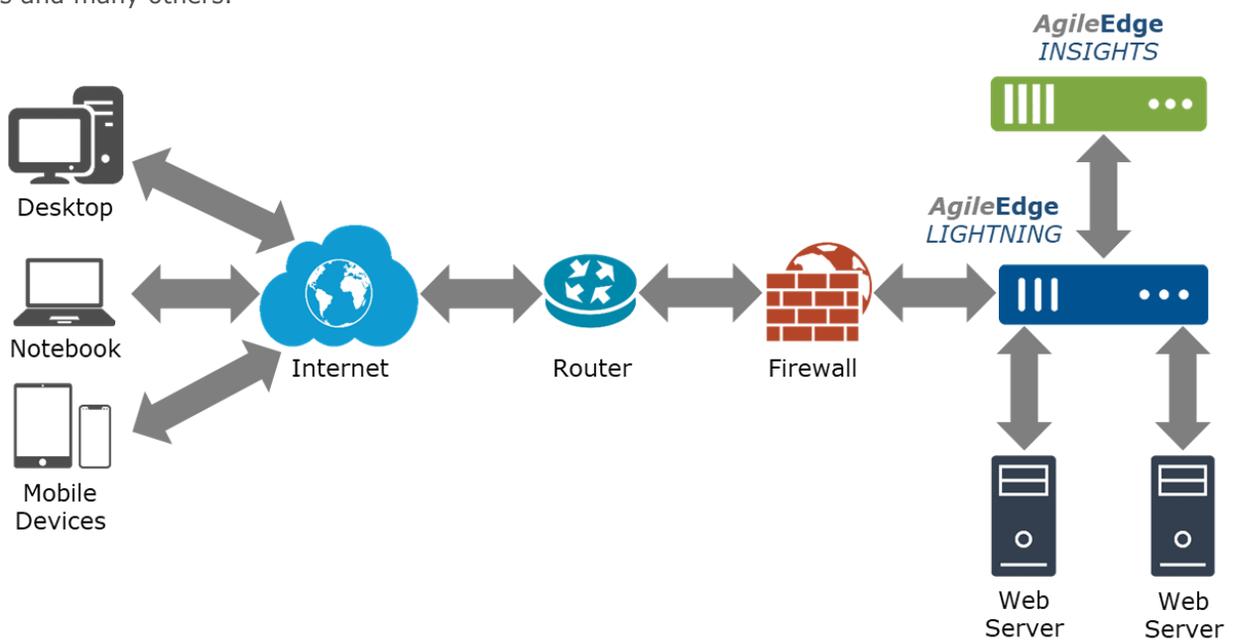## Web Application
Optimisation, Acceleration & Security

With the continuing massive increase of mobile and web devices in today's market and the increasingly demanding user expectations of web performance, many organisations are challenged to improve their web services to better serve their customers. Major affected areas are Total Customer Experience and overall productivity. For both public websites and critical enterprise web applications, speed, security and application responsiveness can make or break an organisation. Slow sites or applications drive users to the competition and sluggish application performance reduces employee productivity. Expanding capacity and growing infrastructure is crucial but it can be very costly and time-consuming.

*Agile***Edge** *LIGHTNING*, the multi-award winning technology has helped making web applications up to ***1000% faster***. With over hundreds of installations serving more than ***400 million*** users every day, it has helped many organisations improve Total Customer Experience, improve security, handle more users while reducing operational and capital expenditure.

Now, there is a solution for you to address the above challenges – *Agile*Edge *LIGHTNING*.

*Agile***Edge** *LIGHTNING* can be deployed as an appliance, virtual appliance or in the Cloud - aligning to business requirements. It works transparently and seamlessly with any web based application or even mobile portal. The powerful optimisation and acceleration engine supports dynamic web applications and provide additional security for websites and web applications. *Agile***Edge** *LIGHTNING* has been implemented in some of the largest organisations worldwide in industries such as banking, insurance, stock broking, government, airlines and many others.

- ✓ Optimise and accelerate web application delivery from 200% to 1000%
- ✓ Over 400 million users accesses every day
- ✓ Scaling applications to serve 100% more users or more
- ✓ Significantly reduce network bandwidth throughput up to 75%
- ✓ Seamless Infrastructure scalability
- ✓ Improve web application security
- ✓ Extend web application monitoring
- ✓ HTTP and HTTPS off-loading
- ✓ No plug-ins or client installation
- ✓ Quick and easy deployment without risks

Desktop

Notebook

Mobile Devices

Internet

Router

Firewall

AgileEdge INSIGHTS

AgileEdge LIGHTNING

Web Server

Web Server

arahE
ideas and technology®

*Agile**Edge** LIGHTNING* is an optimising gateway caching solution that integrates with *Agile**Edge** INSIGHTS*. *LIGHTNING* runs on a high performance server, virtual machine, or in the cloud, using a server grade operating system.

LIGHTNING reduces bandwidth and improves performance by optimising and caching web server content, scaling to the customer's needs by taking advantage of all the server CPU cores, and by optimising network connections.

By moving the user requests from the web server to *LIGHTNING*, the load on the web server is reduced, thereby enhancing reliability of the web server and response time. *LIGHTNING* also has the capability to offload SSL processing from the web server, further reducing web server load. Multiple applications can be combined on one *LIGHTNING* server and independently configured.

LIGHTNING can load balance a pool of web servers and continuously monitor the web servers for availability. *LIGHTNING* identifies unavailable web servers and removes them from the pool, adding them back into the pool when they become available, thus minimising user disruption.

LIGHTNING is able to mitigate some web server attacks that seek to cause buffer overflows, slow requests that tie up resources, overloading of connections that exhaust resources, etc.

LIGHTNING can extend a web server's capabilities or modify its behaviour when web server expertise is not available, for example: rewriting URLs, delivering content based upon the browser user agent, allowing IPv6 access to an IPv4 web server, providing scalable user access, modifying the content expiry times, and modifying the web server defined caching behaviour of the content.

The Heart of *LIGHTNING*

➤ Image optimisation to reduce the image size whilst maintaining image quality
➤ Minification of web pages to remove whitespace and comments
➤ Automatic intelligent object caching with ability to override
➤ web server cache rules
➤ Supports HTTP and client side/server side HTTPS
➤ Supports IPv4 and IPv6
➤ Detailed request logging and real-time statistics
➤ Support for multiple NIC utilisation and NIC failover
➤ Does not interfere with security policies and practices currently in place
➤ Provides additional security protection for web servers and web applications
➤ Web server load balancing capability
➤ Web server availability monitoring and alerts
➤ Integration with *Agile**Edge** INSIGHTS* for detailed analytics
➤ Comprehensive redirection capabilities

LIGHTNING has the capability to queue incoming connections when a pre-configured server limit is exceeded. This results in a the client's browser being placed into a waiting queue of connections, with the client's browser displaying a page indicating their position in the queue. This feature ensures the web server has the resources required to meet the needs for an ideal number of clients, while keeping the clients that exceed the server limit connected to Lightning waiting for when the web server resources become available.

*Agile**Edge** CUBE* extends the performance of *Agile**Edge** LIGHTNING* down to branch or regional levels by providing all of the functionality of Lighting on a smaller scale. This allows branch offices of an organisation, all the benefits of *LIGHTNING* to locally cache content from the head office, thereby reducing bandwidth and increasing performance with the additional benefit of reducing load on the main servers.

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*Agile*Edge *LIGHTNING* Web Application Firewall

Over 70% of all attacks are at the web application level. A Web Application Firewall (WAF) provides an extra security layer to increase the protection of the web server, detecting and preventing the attacks before they reach the web server. The Lightning WAF is embedded into Lightning and is executed whenever a client request is received for a resource that is not cached.

The WAF works by examining the HTTP request from the client and then filtering the request based upon an anomaly score of matching rules. HTTP requests are filtered before they are sent to the web server, using a rule configuration language. The WAF provides monitoring, logging and filtering capabilities using user-defined rules for protection against generic classes of vulnerabilities using rules compatible with OWASP rules.
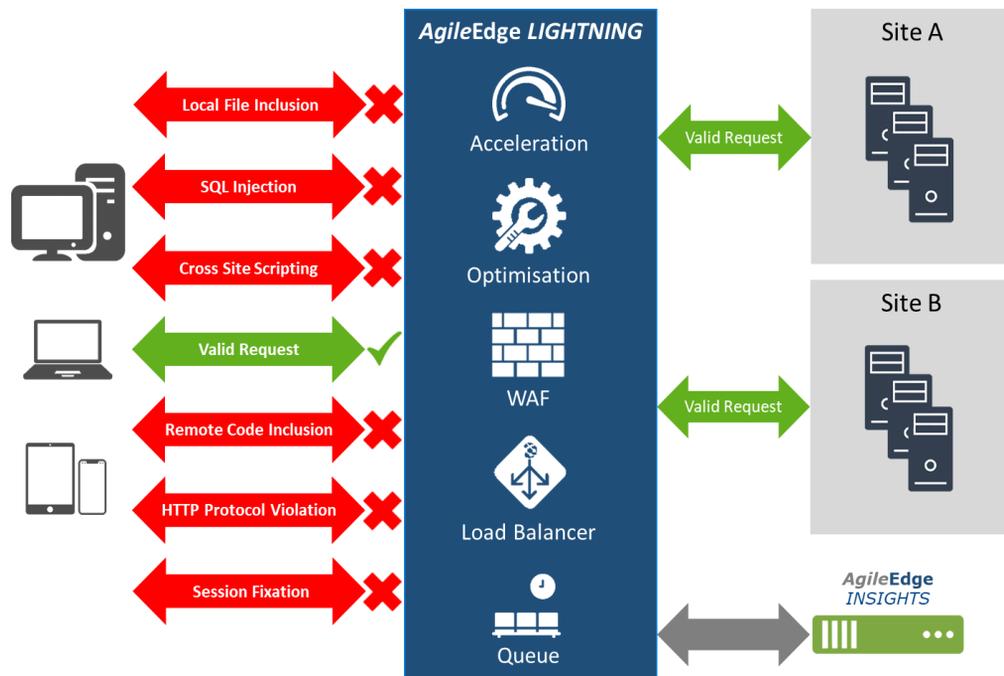
*Agile*Edge *LIGHTNING* WAF configuration rules can be tailored to the customer's needs to provide focussed security and higher performance than a generic set of rules. Typically this is achieved by starting with the full rule set and monitoring the requests to determine the threat assessment. After tailoring the rules the WAF can be switched from monitoring to detection mode to implement real-time protection.

Resource usage on the *LIGHTNING* server is kept to a minimum by only filtering requests that have not been cached, and by using threads dedicated to WAF processing. By using additional server CPU cores for WAF usage the *LIGHTNING* responsiveness is not compromised.

WAF Capabilities

- Security monitoring and access control
- Virtual patching
- Full HTTP traffic logging
- Security assessment
- Web application hardening
- Passive security assessment
- Simple request or regular expression based filtering
- URL Encoding Validation
- Auditing
- IP Reputation
- Null byte attack prevention
- Server identity masking
- Uploads memory limits

Rule Categories

- SQL Injection (SQLi)
- Cross Site Scripting (XSS)
- Local File Inclusion (LFI)
- Remote File Inclusion (RFI)
- Remote Code Execution (RCE)
- PHP Code Injection
- HTTP Protocol Violations
- HTTProxy
- Shellshock
- Session Fixation
- Scanner Detection
- Metadata/Error leakages
- Project Honey Pot Blacklist
- GeoIP Country Blocking

AgileEdge INSIGHTS

AgileEdge *INSIGHTS* is a web analytics solutions for content traffic monitoring, management and analytic in an enterprise network. **AgileEdge** *INSIGHTS* runs on a standalone performance server, virtual machine, or in the cloud, using a server grade operating system.

Integrate with **AgileEdge** *LIGHTNING* to access the data and logs.

Analyse the data and logs collected from *LIGHTNING.*

Visualise the data and logs to help user understand the data better.

INSIGHTS can track and report website or web application usage, gather and visualize data about your application and what that data says about your business. Quickly and easily create real-time dashboards to get immediate answers about end-user experiences, clickstreams, activities, and server transactions. Search through and view charts for your metric timeslice data.
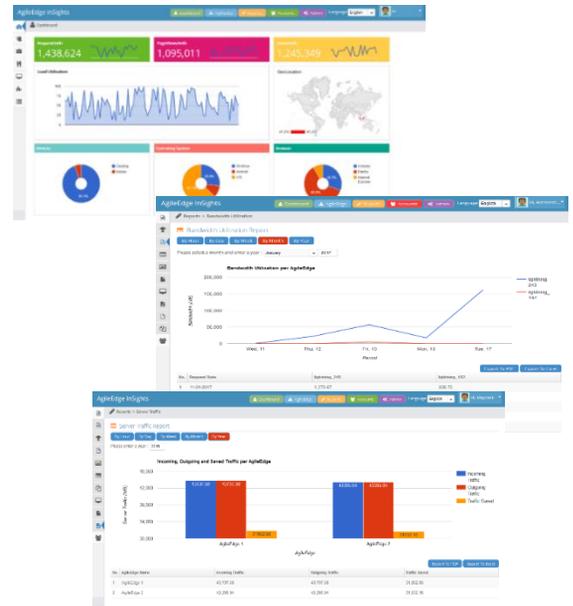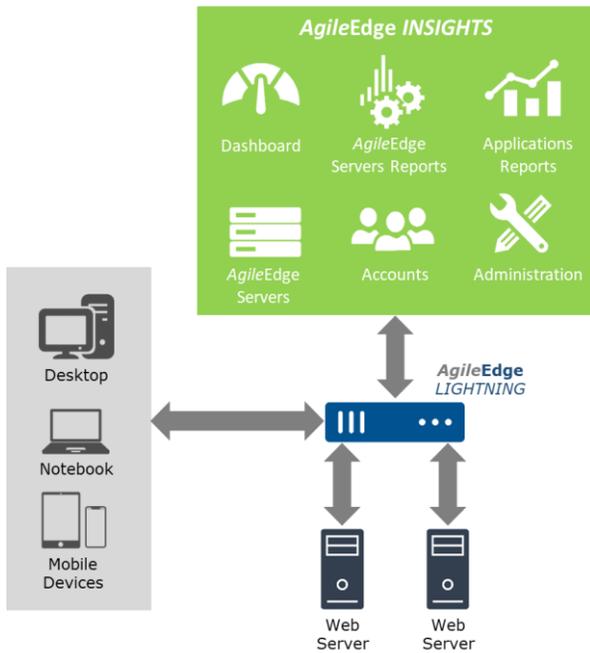
Dashboard
The dashboard will provide the high level of web applications traffic and usage.

AgileEdge Servers
The **AgileEdge** Server manages and configures one or more **AgileEdge** servers that are connecting to the website or web application.

AgileEdge Servers Reports
These reports illustrate the utilisation statistics of the **AgileEdge** servers.

Applications Reports
These reports illustrate the web application statistics that are accelerated by **AgileEdge** *LIGHTNING or CUBE*.

Accounts
Manages the user or customer accounts, server zone, **AgileEdge** servers and profiles.

Administration
AgileEdge *INSIGHTS* application administration manages the access control, audit trail and system settings.