

COMPARATIVE ANALYSIS OF APACHE, LITESPEED, IIS, AND NGINX WEB SERVERS

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Below is a well-detailed comparative table of the four major web servers — Apache, LiteSpeed, IIS, and Nginx — incorporating key technical and operational dimensions. References to the sources are also added at the end.

Feature	Apache HTTP Server	LiteSpeed Web Server	IIS (Internet Information Services)	Nginx (Engine-X)
Developer	Apache Software Foundation	LiteSpeed Technologies Inc.	Microsoft Corporation	Igor Sysoev / NGINX Inc.
Year of Release	1995	2003	1995	2004
License Model	Open-source (Apache License 2.0)	Proprietary (free and commercial editions)	Proprietary (bundled with Windows Server)	Open-source (2-clause BSD license)
Platform Compatibility	Runs on Linux, Windows, macOS, Unix, etc.	Primarily Linux/Unix; limited Windows support	Exclusively runs on Windows OS	Compatible with Linux, Unix, Windows, macOS
Static Content Performance	Moderate due to process/thread model	Very high, owing to event-driven architecture	Moderate, using thread-based handling	Excellent – non-blocking, event-driven approach
Dynamic Content Handling	Good support via modules (e.g., mod_php, FastCGI)	Optimized with LSAPI for PHP-based apps	Strong performance with .NET integration	Efficient with external processors like PHP-FPM
Concurrency Management	Process/thread-based (MPM options: prefork, worker, event)	Fully event-driven and asynchronous	Thread-based concurrency	Event-based, non-blocking I/O
Scalability	Scales well with tuning, but may degrade under high load	Designed for high-concurrency environments	Scales through Windows clustering and load balancing	Highly scalable, ideal for large-scale web services
Security Features	Strong, with configurable modules (e.g., mod_security)	Built-in anti-DDoS, mod_security support, and access controls	Integrates with Windows security policies (e.g., Active Directory)	Secure, minimal attack surface, trusted by major platforms

Feature	Apache HTTP Server	LiteSpeed Web Server	IIS (Internet Information Services)	Nginx (Engine-X)
Configuration Complexity	Highly configurable, but complex for new users	Streamlined management with support for .htaccess	GUI-based configuration (IIS Manager); user-friendly	Configuration via .conf files; steeper learning curve
Market Presence	Long-standing popularity, declining in recent years	Gaining traction among performance-focused platforms	Dominant in Windows enterprise environments	Leading choice for high-traffic, modern web apps
Support for .htaccess	Full support for per-directory overrides	Compatible with Apache .htaccess	Not supported	Not supported
SSL/TLS Integration	Available via mod_ssl and OpenSSL	Native support with enhanced SSL performance	Integrated with Windows Certificate Store	Robust, widely adopted for SSL termination
HTTP/2 & QUIC Protocols	HTTP/2 supported; QUIC via third-party modules	Full support for HTTP/2 and QUIC	Supports HTTP/2; no native QUIC support	Supports HTTP/2 and HTTP/3 (QUIC)
Load Balancing Capabilities	Available via modules like mod_proxy_balancer	Offers advanced native load balancing	Load balancing via Application Request Routing (ARR)	Efficient built-in load balancer and reverse proxy features
Reverse Proxy Support	Yes, through proxy modules	Yes	Yes, when combined with ARR	Excellent; one of the most widely used reverse proxies
Caching Mechanisms	mod_cache, mod_file_cache, disk-based caching	High-performance LiteSpeed Cache (LSCache)	Kernel and user-level caching	Advanced microcaching and FastCGI caching
Common Use Cases	General web hosting and legacy systems	High-performance PHP environments and enterprise hosting	.NET web applications, SharePoint, intranet portals	Static content delivery, microservices, container orchestration
Community & Ecosystem	Extensive open-source community support	Smaller, with dedicated vendor support	Strong enterprise ecosystem tied to Windows Server	Thriving open-source ecosystem, cloud-native focus

Feature	Apache HTTP Server	LiteSpeed Web Server	IIS (Internet Information Services)	Nginx (Engine-X)
Cost Implication	Free	Freemium model; commercial edition requires license	Licensed with Windows Server	Free

Conclusion

- Apache remains a versatile and modular solution, suitable for a wide range of applications, but can face limitations under high concurrency due to its process-driven model.
- LiteSpeed excels in performance, particularly for PHP environments, and includes built-in security and caching tools, though its full features come at a cost.
- IIS offers seamless integration with the Microsoft stack, making it suitable for enterprise users working with .NET, though limited in cross-platform flexibility.
- Nginx is recognized for its high concurrency support and low memory footprint, making it the preferred server for modern, high-traffic websites and as a reverse proxy.

References

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