



## Efficient XML™

# Frequently Asked Questions

## Q: What is Efficient XML?

Efficient XML is a line of commercial software products that simultaneously optimize the performance, bandwidth utilization and power consumption of web services and other XML applications (see Figure 1). They dramatically accelerate XML applications and expand their reach to mobile devices, consumer appliances and other platforms that have limited bandwidth, battery life, CPU power or storage.

Efficient XML products are available for most popular server, desktop and device platforms. In addition to XML optimization, they provide rapid integration, incremental enterprise deployment, XML security optimizations, enterprise schema-management, and developer tools that make it easy, fast and cost effective to integrate Efficient XML into applications.

Efficient XML products are built entirely on open web standards and require no proprietary extensions, interfaces or protocols. They are professionally supported and continuously improved by AgileDelta, the company that pioneered Efficient XML Interchange (EXI).

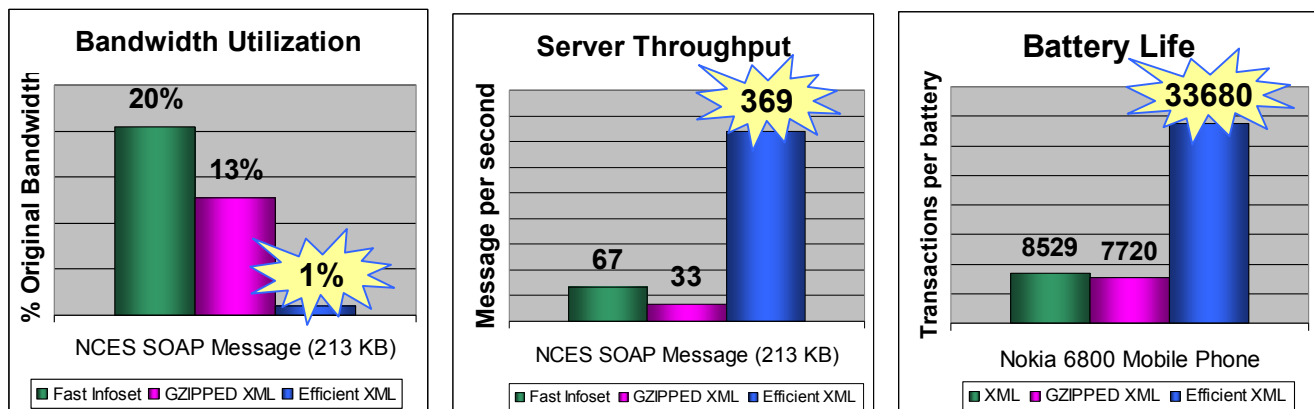


Figure 1. Efficient XML is a dramatic improvement over previous XML optimization techniques

## Q: How does Efficient XML's bandwidth efficiency compare to previous XML optimization technologies and data compression?

Efficient XML consistently achieves far better bandwidth efficiency than previous technologies. The World Wide Web Consortium (W3C) conducted extensive benchmarking of XML optimization and compression technologies and found Efficient XML achieved the best

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bandwidth efficiency for every test group, every use case and every class of applications. The examples below show the bandwidth utilization of Efficient XML compared to previous approaches. The charts show bandwidth utilization as a percentage of the bandwidth required by XML, so shorter bars indicate better bandwidth utilization.

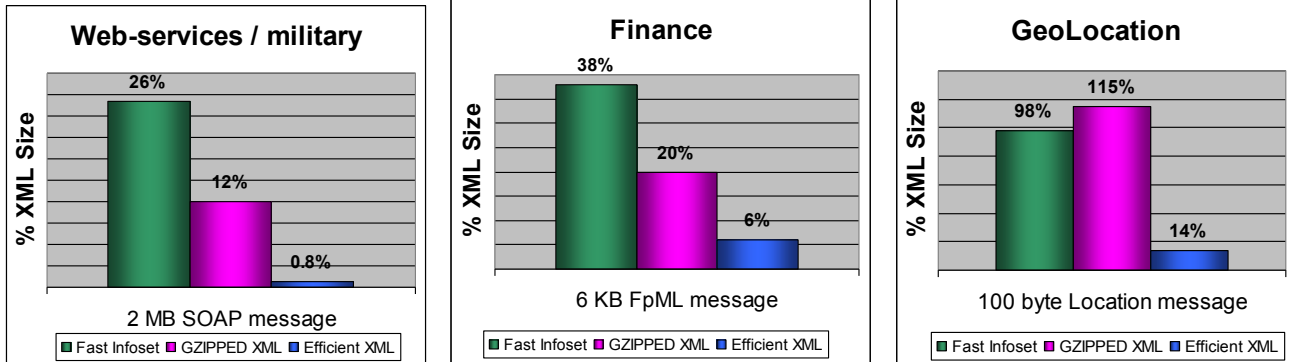


Figure 2. Efficient XML bandwidth efficiency compared to previous approaches

The GeoLocation chart above shows that Efficient XML also works well in cases where data compression fails. In this case, gzip actually *increases* bandwidth utilization to 115% the bandwidth required by XML, while Efficient XML reduces bandwidth utilization to only 14% the bandwidth required by XML.

In general, data compression does not work well for high volume streams of small messages, such as those found in geo-location data, financial exchange data, sensor data and asynchronous event processing. Before Efficient XML, these applications generally required custom binary data protocols. With Efficient XML, they can now use open web standards.

## Q: How does Efficient XML's bandwidth efficiency compare to custom binary data formats?

Efficient XML optimizes XML to new levels and is the first XML technology to consistently achieve the efficiency of the best custom binary formats. As such, it enables the broad use of open web standards for protocols that previously required expensive, custom binary formats.

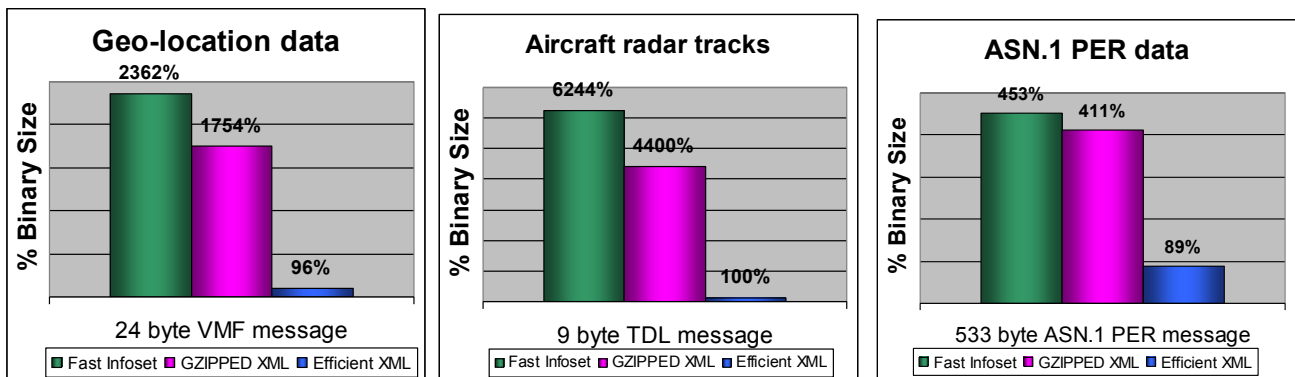


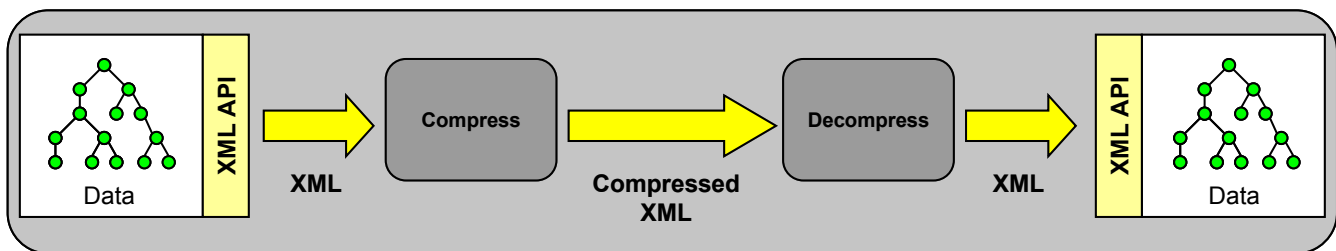
Figure 3. Efficient XML can replace custom binary formats with open web standards

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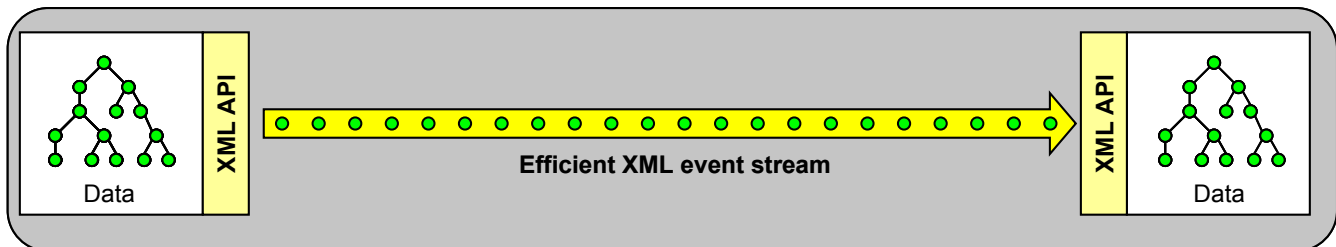
Each chart above shows bandwidth utilization as a percentage of the bandwidth required by a specific binary data format. Values greater than 100% require more bandwidth than the binary data protocol. Values less than 100% require less. As shown by the charts, previous technologies often require 10-60 times more bandwidth than custom binary formats and cannot be used for applications that require this level of efficiency. Efficient XML, on the other hand, consistently meets or beats the efficiency of the binary formats, expanding the usability of open web standards to the most demanding applications.

## Q: How much processing overhead does Efficient XML introduce for compression and decompression?

A: None. Efficient XML is not a compression protocol. It is a more efficient way to package and process web data that actually *decreases* processing overhead, improving throughput and scalability. Efficient XML products generate and consume optimized data streams directly to and from in-memory objects to avoid the overhead typically associated with compression and decompression. The figure below illustrates this fundamental difference between Efficient XML and data compression.



**Traditional compression adds processing overhead for compression/decompression**



**Efficient XML optimized streams are read/written directly via standard XML APIs**

Since the debut of Efficient XML 1.0 in 2003, the Efficient XML processors have been highly optimized and are now many times faster than traditional XML processors. The W3C's benchmarks found the Efficient XML 3.0 processors were some of the fastest XML processors of any kind. Below are examples of the processing speeds achieved by Efficient XML compared to XML and compressed XML. The graphs show throughput in messages per second, so taller bars indicate faster processing speeds.

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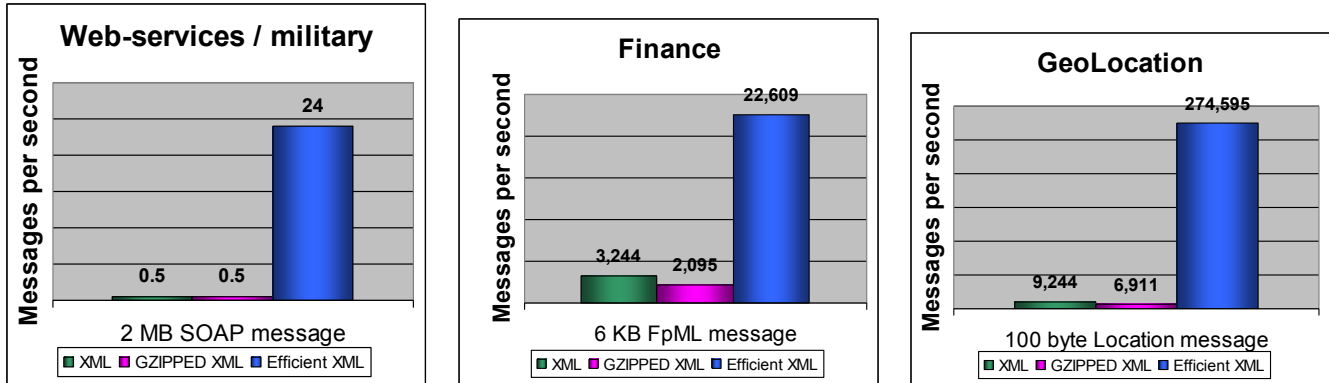


Figure 4. Unlike data compression, Efficient XML actually *accelerates* processing speeds

**Q: Is it possible for systems using Efficient XML to continue working with those that are not yet using it?**

**A:** Yes. AgileDelta's products incorporate standard HTTP content negotiation to automatically detect and use Efficient XML for clients that support it and fall-back to plain-old XML for those that don't. The figure below illustrates how this works.

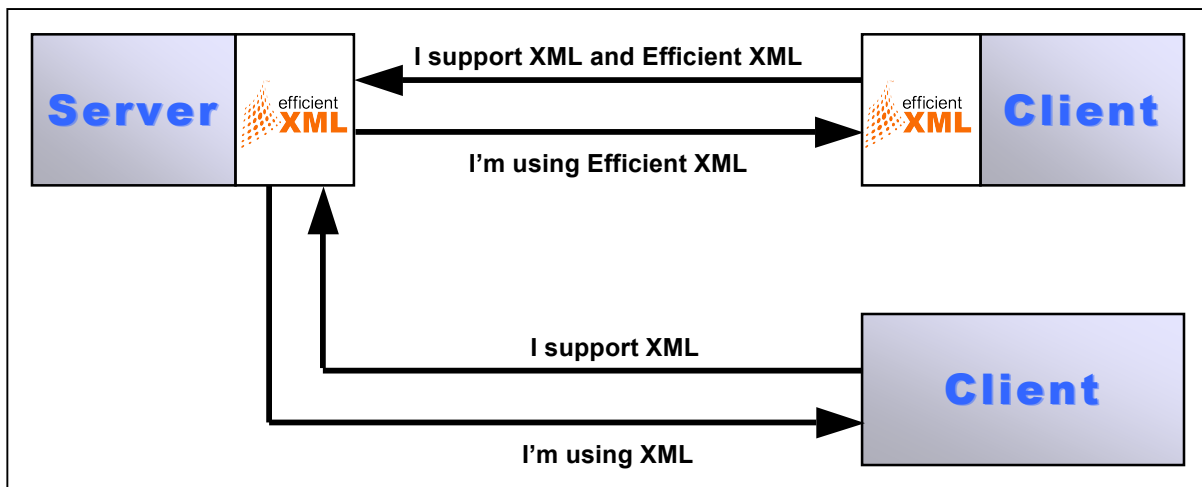


Figure 5. AgileDelta products automatically fall back to XML when Efficient XML is not available

**Q: Does Efficient XML work with XML Security?**

**A:** Yes. Unlike many previous XML optimization protocols, Efficient XML was specifically designed to work with existing XML Security standards and libraries, including XML Digital Signatures and XML Encryption. In addition, AgileDelta provides Efficient XML Digital Signature and Efficient XML Encryption products that leverage Efficient XML to eliminate well-known XML Security bottlenecks and increase the bandwidth efficiency of XML Security protocols.

## Q: Do I have to make software changes to use Efficient XML?

No. AgileDelta provides plug-ins that add Efficient XML to popular web servers without changing any code on the client or server. The figure below illustrates how these work.

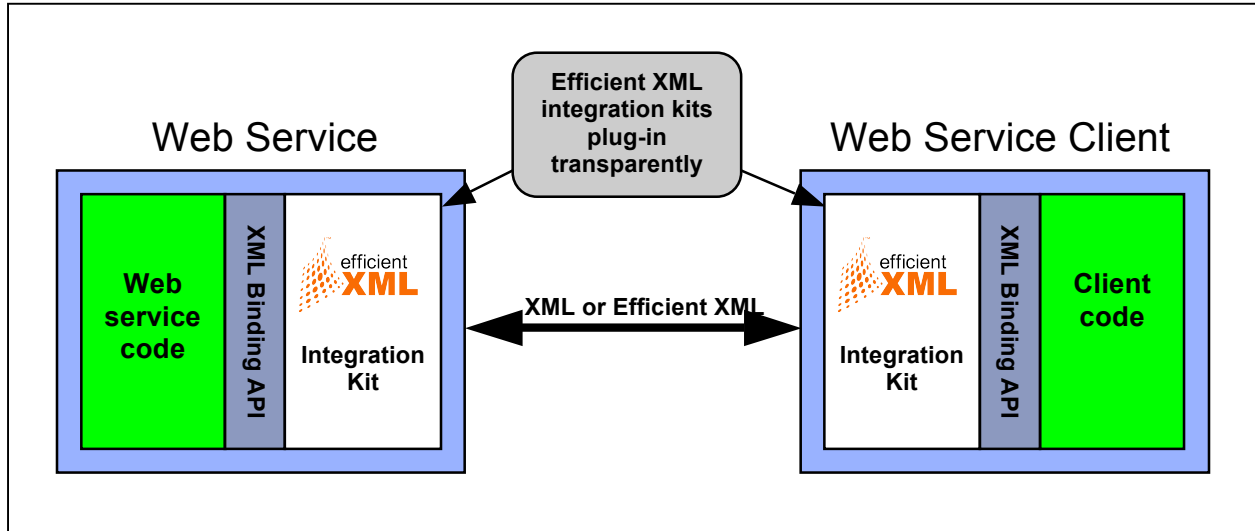


Figure 6. Efficient XML Integration Kits plug in with no code modifications on the client or server

AgileDelta also provides Efficient XML Gateways that can be used to rapidly add Efficient XML to a set of applications or an entire network of machines without making software changes.

## Q: Has Efficient XML been independently tested and validated?

Yes. Efficient XML products have been rigorously tested and evaluated by several independent assessors. Below are a few.

The World Wide Web Consortium (W3C) conducted extensive testing, benchmarking and analysis of XML optimization and compression technologies. They found Efficient XML was one of the fastest XML optimization technologies of any kind and consistently achieved the best bandwidth utilization for every test group, every use case and every class of XML application.

The U.S. Navy's Joint Rapid Architecture Experiment (JRAE) '06 tested and assessed Efficient XML for extending web services to low-bandwidth users using a variety of enterprise systems. The final report called Efficient XML a "transformational capability" and recommended it "be incorporated as a standard in all future data sharing systems."

The U.S. Air Force's Joint Expeditionary Force Experiment (JEFX) '06 assessed Efficient XML on aircraft, vehicles, satellite systems, near-space relays, special operations forces, and various command and control systems. The final report said Efficient XML was "operationally needed", "technically mature" and recommended "immediate fielding."

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**Q: Is it possible to view, edit and debug Efficient XML optimized data streams using standard XML tools?**

**A:** Yes. With Efficient XML plug-ins and converters, Efficient XML data streams can be read directly or automatically converted for viewing, editing and debugging using standard XML tools. For example, developers and testers can use standard web browsers equipped with an Efficient XML plug-in to view Efficient XML data. The screen snap-shot below shows that Efficient XML data looks and behaves identical to traditional XML data in the web browser when using the Efficient XML plug-in.

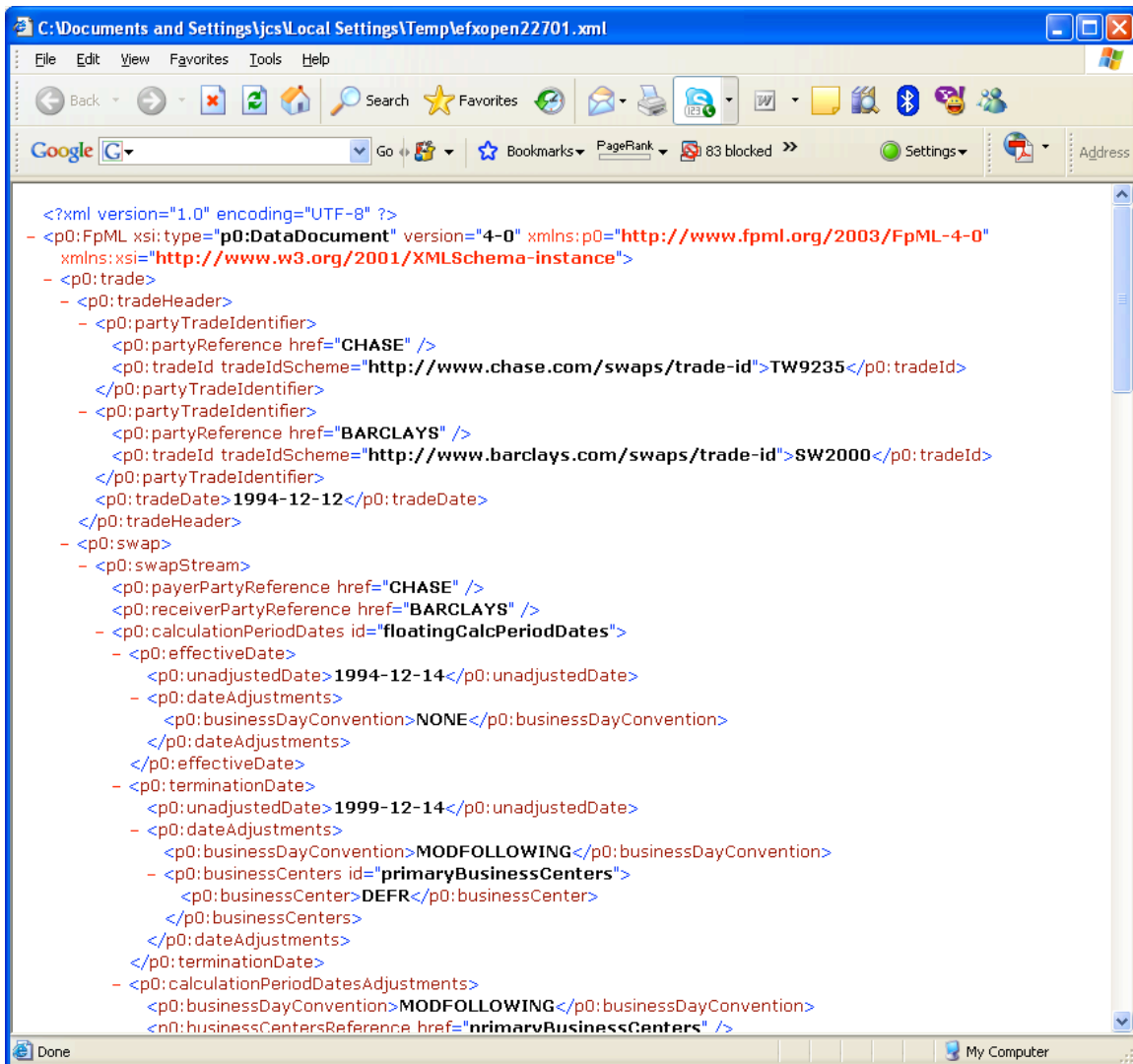


Figure 7. With Efficient XML plug-ins, optimized data looks exactly like XML data in a web browser

For more information about AgileDelta or Efficient XML, visit us at <http://www.agiledelta.com> or e-mail [info@agiledelta.com](mailto:info@agiledelta.com).