Whitepaper

Extending Your SOA and Internal Applications Utilizing Commercial Web Services

Integrating Externally Available On-Demand Data and Functionality for Greater Productivity

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Rethinking the Role of External Integration

The integration marketplace is changing at an ever increasing pace and companies are looking for new ways to react faster to changing business needs while becoming more efficient and reducing costs. In addition, competitive pressures are intensifying and the need for better customer and business intelligence has become paramount for more effective business decision making.

As a result, it is no longer feasible to wait a long period of time for data to be accessed or functionality to be delivered and integrated into a company's business decision making process.

There is ever increasing pressure on IT to find new ways to accomplish these tasks and more efficiently deliver new functionality and integrate real-time access to data; all with fewer resources.

Companies must discover new ways to solve these problems if they are to be competitive and adapt effectively to the market changes.

Approaches have included making their business processes more efficient and improving their access to multiple sources of internal data for business decision making and improving customer relationships. Many companies have also outsourced some of their work to other companies to reduce costs and allow them to focus on their core business capabilities.

This has even been extended to working with external suppliers and partners by utilizing technologies to more efficiently work together and meet market demands.

However, the bottom line is that while these actions have enabled progress they have not been sufficient. The need is even greater for more cost effective ways to deliver and integrate new functionality and access to external data. This has led to the emergence of new technologies and business models that can provide a more effective solution.

The net result can be improvements in productivity, cost efficiencies and most importantly, more effective customer, market, and competitive decision making.

It is important to understand the market changing drivers that are fueling these requirements and then what technologies and business models are now available to fulfill on these needs.

This chapter deals with the market changing drivers and how they are requiring companies to re-think their ways of acquiring new functionality and integrating external data access to reduce costs, deliver on capabilities faster, reduce complexity, and improve their business decision making.

Battling cost, speed, and complexity

Every IT manager has been faced with the on-going battle of reducing costs while delivering more capabilities at an ever increasing rate of delivery.

The old development models were quite basic – buy it or build it. Development models required tremendous up front costs whether it was built internally or through outsourcing. Therefore time was spent on how to make the development process more efficient and finding lower cost resources to build it.

Purchasing software was also expensive because the business models required high, up front costs. While purchasing external functionality could speed up the delivery process, it was often an all or nothing proposition even if you did not need all the functionality. Even worse were situations where the functionality was too limited and it necessitated buying multiple solutions that were not based on standards thus hard to integrate and/or customize.

This was compounded by the fact that accessing external data was being driven by very traditional models that required expensive bulk purchases (whether you needed all the data or not) with expensive and time consuming integration and cleansing, or the use of very expensive software that was proprietary and limited for access to more current data.

All of these solutions are expensive and time consuming thus antithetical to the very notion of cost reduction and greater efficiency.

This led to the requirement for standards based technologies and loosely coupled architectures that allow the plug-and-play of new functionality more efficiently and with greater flexibility.

Even with these new requirements in place, companies would have to spend valuable resources and time on developing the functionality. Quite often these were resources being applied to infrastructure requirements or applications that were needed to support the company but not necessarily core to their business.

This begs the issue of whether there is externally available functionality that could be integrated quickly and easily into their internal infrastructure that could significantly reduce their costs and improve their delivery time.

Availability of externally provided modular functionality

The generally accepted model for delivery of software functionality had been in the form of monolithic software applications. That is changing and functionality is now being provided in a variety of ways allowing for faster plug-and-play models that reduces costs and complexity.

For example, software vendors are aggressively “modularizing” their applications to allow the plug-and-play of their components into a company’s internal architectures thus greatly simplifying the process and providing more flexibility and faster time to delivery.

Other software applications are provided on-line requiring that a company only pay for what they use and not have to install and maintain complex infrastructures.

Application vendors are also allowing access to their online functionality via Web services to let customers to extend the vendor’s application, utilize the functionality in other applications, and build new applications.

This is now being expanded to providing modular, hosted component functionality available online that can easily and quickly be integrated into internally facing or externally facing applications. The net result is that companies can build applications faster and focus more on their core capabilities than infrastructure or application capabilities.

The external availability of functionality has profound implications for internal development and external integration and new technologies and business models are emerging to enable this market capability.

The critical nature of external data integration

Companies have realized that data and applications cannot reside in isolated silos but need to be integrated so that data can more effectively be used to make business decisions and target, sell, and support customers.

External data sources provide critical information that, when combined with internal data, provide a more comprehensive and effective view of their customers. This means the integration of both "internal" and "external" data can result in better business intelligence and thus greater customer value and corresponding increases in profit contribution.

The traditional integration of external data has been either through expensive and time consuming bulk transfers or through expensive and proprietary applications. In both cases the integration process requires multiple steps of accessing, importing, cleansing and updating.

If companies are to more effectively address their costs and complexity issues, new technologies are required to enable this type of integration and do it with significantly greater impact.

How you implement your external integration and the timeliness and quality of the data can make a tremendous difference in efficiency, productivity and business decision making.

Real-time access takes it to the next level

Dealing with rapid change in customer and internal information requires that the access latency time be reduced to obtain more complete and accurate information. Today, many companies are getting data that is already out of date when they receive it. Or, they are not taking advantage of real-time data or functionality because it is not available to them.

Companies are continuously finding that more accurate and timely customer data reduces costs and can drastically improve productivity. This represents an area where great value can be added by enhancing existing internal applications with access to real-time externally available data sources.

A good example of this is for the more traditional data cleansing or data quality components where the data changes frequently and it becomes more critical to access external data in real-time to improve productivity and efficiency. This can also be extended to external company and financial data, and external communications such as mobile device communications and instant messaging.

Integrating external access to the most accurate real-time data and new functionality is critical to more effectively deliver what is needed at the right-time in the process.

Providing value by helping to solve the real-time requirement has important competitive and customer implications that will allow faster reaction to change.

New technologies and business model enablers

In order to more effectively integrate external data or functionality, companies need to not only rethink how the integration can occur and but also what new business models might better serve their requirements.

For example, the traditional "bulk" import/cleanse/integrate methodologies or utilizing specialized applications to access, download, and integrate supposedly "real-time" data may no longer be the best way to accomplish these tasks. Purchasing large applications and risking the expense and implementation time may also not be the best way to extend functionality and provide new services.

New technologies are now available to integrate external data and functionality that provide direct integration into a company's internal architectures and applications for true, real-time access with greater flexibility and cost efficiencies.

The emergence of a new global computing model often described as the Programmable Web has occurred because the notion of quickly and easily providing services through plug-and-play functionality hosted on the Web.

The starting point for these new models has been XML Web services and Service-Oriented-Architectures (SOA). Companies have eagerly latched onto standards-based SOAs using XML Web services in order to provide greater flexibility and agility for internal integration, adapting to change, and building new functionality.

These same notions can be applied to external integration that has been further enabled by the development of new business models that provide more cost effective alternatives. For example, new emerging business models can provide a pay-per-use or a monthly or annual subscription for a specific amount of usage that can greatly reduce costs because you only use what you need when you need it!

Unlike the high cost, front-loading of traditional software licensing models, these new transaction based models allow for significantly easier and faster integration that are more cost efficient and can grow as the need grows. In addition, they allow for significantly greater flexibility with less risk.

Implications

Companies need to rethink how they can extend their SOAs and internal applications to more effectively integrate external data and functionality. Fundamental to this is asking these questions:

- Is there another way to deliver functionality faster with fewer resources and can that functionality be externally provided?
- Is there another way to integrate external data faster and in real time to enable greater productivity and more effective decision making?
- Is there a way to reduce complexity and enable a more focused use of resources on the core capabilities of the company where greater efficiencies can be realized?

The availability of externally provided functionality, real-time access of external data, and new technologies supporting new business models are critical considerations to more effectively integrate external data and functionality to develop more flexible and better ways to adapt to change, reduce costs, and be more effective.

This paper explains how standards based XML Web services, along with new commercial business models, can serve as a foundation for accessing real-time data more cost effectively and at the right time for better customer management, resource productivity, and better business decisions.

This paper also examines how new technologies have emerged to allow Web services to take a tremendous leap forward in utilization by enabling the notion of commercially reusable and easily integrated components. "Commercial Web services" in this context are XML-based Web services that can be purchased with a paid subscription from an external provider to utilize in applications.

The utilization of commercial Web services as the primary vehicle for accessing external data and functionality will fundamentally change the way we think about external data access and integration.

The results will be real-time and on-demand implementations that will enable more productive and effective management that can realize faster adaptability and agility to marketplace changes.

To understand how these technologies are coming together, we will first briefly examine the alternatives around extending SOAs and internal applications with external data and functionality integration.

Then we will examine how the commercialization of Web services will provide a more efficient, flexible, and economically viable alternative to extending applications for real-time integration to external resources.

Finally, we will show how all the key ingredients are coming together to provide a Web services marketplace where commercial Web services can be purchased and easily integrated.

Alternatives for External Integration with SOAs and Internal Applications

Everyone agrees that information is fundamental to the business decision process. However, simply processing information is no longer sufficient especially on a competitive level because everyone can do it.

Where efficiencies, greater productivity and improved business intelligence can be realized is in optimizing how the information is accessed, integrated, and utilized. A company should optimize by considering how important is accessing real-time information or enhancing current data to improve the quality of the data and improve the productivity of the user.

If data changes frequently and the availability of accurate data can impact productivity, costs and decision making, then real-time access is critical. Likewise, if real-time access can ensure higher quality data so that any action based on that data is not wasted then it is also critical.

For example, having real-time access to verify phone numbers, postal addresses, or email addresses will result in much higher data quality and less waste than bulk processes that have a long latency by the time the data is imported, cleansed, and made accessible.

The ability to enhance data on a real-time basis or on-demand can also result in improved productivity. For example, contacting a prospect can be more successful if you not only have their phone number, but also their email address, postal address, and some demographic information about the prospect.

Other examples include acquiring information to verify identity or stop fraud, performing a real-time lookup on business and consumer information for applications, verifying email and postal addresses upon input, and sending a text message to a customer based on market data or any event trigger. All of these require access to real-time external data and functionality to be effective.

Different technologies provide different levels of efficiency in meeting these requirements. Data access and integration to improve quality and enhance information have been accomplished in a variety of ways and each technology should be evaluated in the above context.

Traditional data integration methodologies

Traditional data integration has usually taken the form of importing data from another file or writing an intermediate program to pull that data from another source. Although the end result of traditional data integration methods is a lot of useful information, these methods typically require extensive processing, cost organizations valuable bandwidth, time, and resources, increase the probability of errors, and lead to a management nightmare regarding accuracy, revision control and data security.

In addition, the very notion of providing a *snapshot* of data for a given point in time means that the data is most likely “out-dated” as soon as the analysis begins because traditional methods do not provide real-time data access. Therefore, each time an updated set of data is required, users must begin the cycle again - extracting data, importing, transforming and cleansing as necessary.

With each repeated cycle, the amount of database support, development time and potential for error increases. With so much time spent “reinventing the wheel” by continuously extracting, exporting, and transforming data, little time is left to analyze trends and make adjustments and other business-critical decisions unless costly additional resources are applied.

These traditional methods work well when the real-time value is low, when quality cleansing can be bulk processed, and the data is sufficiently meaningful for the task.

However, when multiple sources of data need to be integrate that are time sensitive, it becomes very problematic and more automated integration technologies and ways to centralize access for greater efficiencies become critical.

ETL and data warehousing

As businesses grow the need for timely, detailed, and accurate information becomes even more critical for business decisions. As a product of this growth, not only the volume of data increases but its complexity is multiplied when dealing with multiple sources, distributed access and complex schemas and data types. This is compounded when trying to provide a common, single view of the customer, products and business processes requiring data synchronization and data quality cleansing.

Two forms of technology have evolved to assist in the integration of high volumes of differently sourced data. The first provides a solution for "extraction, transformation and load" (ETL) capabilities to allow companies to transport, manage and synchronize vast amounts of information across the enterprise.

The second is to use ETL to feed "data warehouses or data marts" which are consolidated data stores that can be synchronized and accessible via reporting tools as well as integrated with other applications to provide a consistent and common view.

These are ideal for dealing with massive amounts of data from multiple sources and providing "right-time" delivery with longer latencies that match regularly scheduled deliverables as well as for business intelligence data mining that does not have a real-time requirement.

On the other hand, they require huge infrastructure investments, are usually proprietary in their interfaces and thus do not have the flexibility for fast changes, and do not easily solve real-time requirements with short latencies. Since they are typically run on a periodic schedule and use a bulk approach, they cannot monitor transactions and capture changes in real time.

ETL providers have started to expose their engines as Web services to enable real-time utilization, but the result has been expensive software that places an extremely high runtime burden on the network because of its bulk nature and position as an intermediary in the processing.

A better solution would be to have a standardized way to access the data "on-demand" to update in real-time as required – hence, the development of Web services.

XML Web services

The answer to solving most of the previously noted problems was to develop new standards that deal with communications, document handling and other critical components. The answer came in the creation of standards-based XML Web services.

"Web services" are self-contained, self-describing, modular software components based on industry standards that allow software to communicate with other software over the Web (or any network).

Since they are based on standards, any software that utilizes those standards can "communicate" with the Web service regardless of the software platform, language it is written in, or hardware it is running on. The results are easier accessibility and reusability for reduced costs, faster development, faster integration, and easier access to real-time, on-demand data and applications.

XML Web services can literally provide plug-and-play functionality with increased flexibility to adapt to change, more efficient use of reusable components, faster development of new capabilities, and platform independence to enable broader usage.

Combine this standardized, loosely coupled approach with standardized communications allowing network access and you have the foundation to enable a leap forward in how data and functionality can be integrated into your architecture and applications. You also have the foundation for developing new business models because the data can be served in real-time or on-demand when it is needed.

As a result, a growing percentage of companies have moved to developing standards based Service-Oriented Architectures (SOAs) utilizing XML-based Web services. These solutions address all the requirements of speed, adaptability, integration and real-time in addition to providing "reusable components" and more efficient application extensibility for both data and application integration.

Perhaps the most compelling reason for SOA implementations using Web services has been their positive effect on I.T. organizations. Internally, Web service technology has enabled organizations to extend their data reach across the enterprise, joining fragmented elements into one cohesive data architecture.

Web services have dramatically reduced the #1 cost to an I.T. group – application and data integration. Web services can be developed as "wrappers" around existing access methods thus opening up existing legacy architectures to become "service-oriented" architectures.

Thus Web services allow I.T. organizations to grow organically by hooking into the functionality of existing software systems for more cost effective integration and growth.

This same notion is now being utilized to provide external integration with applications and data between businesses.

Web services are an excellent candidate to enable more effective access to third party data and functionality for real-time business intelligence, data cleansing and data enhancement to reduce costs and improve the productivity of business processes.

Using Web services for real-time external integration

Web services provide the ideal technology solution for extending the enterprise data and process integration externally to data providers, suppliers, and partners.

By leveraging standards based Web services for access to external information and processes a company can significantly reduce their costs, provide for more flexible sourcing scenarios, and significantly improve their business intelligence and business decision making processes.

This becomes even more critical when there is a need for the most up-to-date data available or where clean, frequently changing data can improve productivity.

As noted earlier, traditional "bulk oriented" methods work well when the real-time value is low, when quality cleansing can be bulk processed, and the data is sufficiently meaningful for the task. However, when the real-time value of the data is critical because it is constantly changing, or it needs to be integrated along with other sources into an application, it becomes problematic.

A variety of technologies have emerged to provide real-time access to data from multiple sources. These include server-side agents that capture change data, more efficient asynchronous and synchronous transaction oriented systems for updating and other "proprietary" techniques.

However, theses technologies or applications are expensive, proprietary, need extensive customization or the applications still require multiple steps to integrate their data with the internal business intelligence or CRM systems.

Directly integrating Web services represents another and more efficient alternative. Web services access to externally available data and functionality can address all the requirements of speed, adaptability, integration and real-time access in addition to providing "reusable components" and more efficient application extensibility and new development.

This is the very notion embodied in the Programmable Web which utilizes the Internet as a platform for easy, plug-and-play integration of Web services to provide new functionality and services. This same notion can be applied internally through the implementation of Web services and SOAs and then extended outward for faster integration of new functionality and access to real-time data.

As more external data and functionality becomes available externally via Web services, it becomes a natural way to extend internal applications and architectures quickly and powerfully.

Companies now have the ability to support a dynamic, real-time business environment while significantly lowering their cost, reducing complexity, and enabling faster delivery.

To do this effectively, the market needs a way to commercialize these Web services and an eCommerce system to facilitate their utilization.

Commercial Web Services Provide Additional Value

Many companies are now moving to commercial Web services as an alternative way to access data and functionality. Utilizing third party provided Web services can significantly reduce the cost of extending application capabilities.

This allows for new business models that permit customers to only pay for what they use versus having to buy expensive specialized applications or expensive bulk data. As a result, easier integration, easier and faster access at a lower cost enables more companies to utilize critical external data or application functionality.

Commercial Web services provide an alternative way of integrating externally available data and functionality to improve their competitiveness, improve productivity and be more responsive to market and customer needs and changes.

Commercial Web services can provide a trusted environment with the security and reliability needed to warrant justifying their integration into business applications.

Web services are now commercially available in the market for a broad spectrum of data and functionality through multiple providers. Providers include individual companies providing specific Web services for industry domains and aggregators that provide directories of multiple providers crossing a wide range of functionality.

Commercial Web services benefits

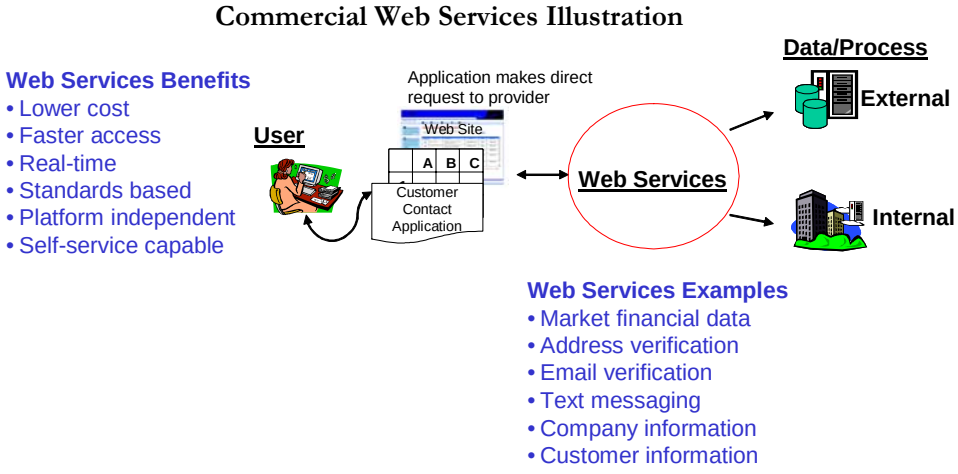
The following are some of the benefits of using commercial Web services to extend your SOA implementations and internal applications:

- Transform SOA implementations and CRM and business intelligence applications into on-demand solutions for more effective decision making with the most up to date information.
- Plug and play access to a wealth of functionality and data via Web services.
- Faster time to market and to build real-time, on-demand applications.
- Easier access and lower cost integration of real-time data for on-demand applications.
- Lower infrastructure and development cost than traditional development methods.
- Reduced implementation risk with trusted, reliable Web services.
- Developers can integrate on-demand capabilities into Web sites and current applications or build new on-demand applications faster, with lower maintenance and support costs, and with greater flexibility for future changes.

Commercial Web services utilization examples

Numerous examples are now available of data providers and application providers providing access to their capabilities via Web services. Web services can now be utilized to access financial data, customer contact information, company data and many other forms of external business intelligence information and application functionality such as text messaging.

Web services are offered by a variety of vendors on a subscription basis for integration into applications or for developing new applications. The following diagram provides an illustration of the potential holistic integration possibilities:



It is now possible to pull data and functionality from multiple sources to create sophisticated "live" on-demand applications without extensive new programming and integration!

The following are some specific examples of how commercial Web services can be utilized to extend current applications and build new ones:

CRM/Marketing and Sales/Data Quality

- Marketing and sales can access real-time customer information from the customer and market data providers and combine it with internal CRM systems for enhanced real-time interactive customer interaction and tracking.
- Sales can verify and enhance customer sales contact information in real-time to reduce wasted time and improve productivity because their information will be more accurate.
- Marketing can do real-time customer contact verification and enhancement to improve marketing productivity, reduce costs of unnecessary mailings and improve response rates.
- Customer contact information can be verified and enhanced to reduce cost of nonproductive calls and improve customer intelligence at a lower cost and with better response times.
- Customer Do Not Call lists can be checked in real-time to improve productivity and compliance as well as reduce the costly of monthly database maintenance, integration and cleanup required by traditional methods.
- Data and event driven actions can trigger real-time alert systems using text messaging solutions to notify company individuals and sales people in the field.
- External company, market and customer business intelligence can be integrated with internal data warehouse information for improved customer interaction, targeting potential new business opportunities, and making faster and more effective business decisions.

eCommerce

- An eCommerce Web site can use Web services to access real-time, on-demand customer data to verify postal and email addresses and phone numbers, obtain current sales tax rates, or validate credit cards before a transaction takes place to reduce cost and improve productivity.
- Marketing and sales applications can integrate geographical information or census information related to ZIP codes for better targeting of cross selling promotions.
- External company and customer information can be integrated with live contact center information to assist, verify and correct if necessary, and be integrated with internal data for business-to-business communication, ordering, and tracking.
- External information can be used to verify and correct order/shipping information for customer Web sites and even used to track the status of the shipment.

Communications

- eCommerce and financial applications can integrate mobile text messaging to provide alerts, news and other information based on trigger events.
- Sales applications can provide mobile text messaging and/or email for sales broadcasts, lead updates, customer alerts, and customer contact requests.
- Universities and schools can provide a low cost way of contacting students and parents for important information, weather related closings, and changes in schedules and classes.
- Municipal services can utilize IVR technology to deliver telephone voice notifications in addition to email to alert or notify customers about changes in services due to weather, repairs or other factors.
- Companies can utilize mobile text messaging for bulk or targeted communications internally for any critical information needed to be sent to a group of mobile devices in mere seconds for alerting, monitoring, calls to action, data–driven notifications, and many other scenarios in which you want to communicate with a mobile phone in an automated or non–automated manner.
- Marketing can utilize mobile text and email messaging for special promotions for opt-in customers.

Financial

- Business and financial applications can quickly access Web services to get real-time, on-demand external financial and company data for better decision making at a more cost effective price point.
- Business and financial applications can integrate real-time external market, company and individual data with internal financial, inventory, manufacturing and orders data for more effective decisions.
- Business and financial applications can improve data consistency and reduce errors by mandating a single source and methodology through Web services and reduce dependence on outdated "snapshot" data sources and "walking spreadsheets."
- Business and financial analysts can reduce costs and improve reaction time by removing the costly and time consuming integration of bulk data as well as reduce their dependencies on specialized applications for accessing externally supplied data.
- Inventory systems can be enhanced use real-time weather data to adjust geographic inventory levels.
- Pricing and purchasing systems can integrate real-time data for better automation, real-time price comparisons and purchasing various goods for better decision making.
- Pricing and financial systems can integrate real-time competitive and industry information for faster and more effective decision making.
- Electronic exchange and analysis of shipping data with customers and business partners.

Web Services Marketplace Brings Everything Together

The commercialization of Web services requires rethinking what is needed both for the technological solution and the business models that will make it a viable proposition for both the provider and the consumer. Commercializing Web services requires dealing with some new and unique problems.

For example, a Web services commerce platform must be designed to handle utilization of multiple Web services, among multiple users simultaneously, with multiple pricing alternatives, at the micro-transaction level.

In addition, the Web services commerce platform must address the following in a consistent way for different audiences:

- Provide for transparent access to multiple authentication techniques by different providers.
- Allow for flexible pricing alternatives across different business models.
- Provide a consistent publishing system to make Web services available.
- Provide an easy to use and understand directory and search services to find the Web services.
- Provide registration, trial, licensing, billing, payment, tracking and management tools.
- Address security, error and exception handling, routing, redundancy and data center management.

The specifically designed eCommerce platform provides the foundation.

There needs to be a place where all the relevant audiences can come together to enable the process of doing business around commercially available Web services.

This all comes together in a Web services marketplace.

What is a Web services marketplace?

A Web services marketplace provides online services for selling (publishing) and buying (subscribing to) commercial Web services from multiple providers in addition to the technology infrastructure and data center requirements to facilitate it.

It brings together all the necessary components to build a viable commercial industry through the enablement, commerce, and utilization of Web services based data access and functionality in a trusted environment.

Requirements for a Web services marketplace

A Web services marketplace contains the following:

- Web services eCommerce platform specifically designed for Web services authentication, subscription, purchasing, publishing, account management, billing, payment, security and usage tracking of multiple Web services among multiple users at the micro-transaction (invocation) level.

- Simplified and transparent trial, subscription and utilization of multiple Web services.

- A complete self-publishing capability designed to provide maximum flexibility for any alternative access and pricing plans, transparent authentication to handle different authentication technologies and methods, version control, comprehensive marketing tools to facilitate commercial selling, and quality reviews to meet requirements for reliability and validity.

- Integrated tools and services including a directory with search services, analysis tools for easier understanding, additional documentation to facilitate understanding, monitoring capabilities to ensure Web services availability, and management services tailored for the user to manage subscriptions, publishers to manage published Web services and ISVs to manage integrated Web services.

- Technology infrastructure needed to handle security requirements, exception handling, routing, redundancy, and data center requirements and monitor service levels.

- Channel and community support to facilitate the marketplace ecosystem and enable the utilization and integration of externally provided Web services.

- Expert professional services to assist in the development, publishing, utilization and integration.

Benefits of a Web services marketplace

A Web services marketplace brings together all the key components for effective commercial utilization of externally available Web services. The following outlines benefits that are incremental to the benefits previously outlined for a Web services eCommerce platform alone:

- Provides a level of consistency and standards enforcement across a worldwide heterogeneous inventory of Web services.
- Eliminates the complexity of utilizing multiple services from multiple places thus simplifying purchasing, integration and management.
- A single location for simplified billing, accounting and tracking.
- Integrated tools to accelerate understanding and utilization without programming.
- Consistent and more flexible choices of pricing and usage models to best fit your needs.
- Simplified authentication for trial and subscriptions to facilitate utilization.
- Enhanced documentation for easier understanding.
- Consistent buying process for easier access and faster utilization.
- A single, easier management system to manage multiple Web services.
- Assurance of working with a trusted Web services supplier to ensure customer satisfaction.

Companies can now extend their SOA implementations and internal applications to take advantage of real-time data and functionality and to realize greater productivity and customer value.

This translates into higher customer satisfaction and corresponding revenue and profits.

Who provides a Web services marketplace to let you take advantage of all these benefits?

The answer is the StrikeIron Web Services Marketplace.

The StrikeIron Web Services Marketplace

StrikeIron Web Services Marketplace overview

The StrikeIron Web Services Marketplace brings together the entire community of users, publishers, ISVs and channel partners in a commercial business focused on Web services.

The **StrikeIron Web Services Marketplace** simplifies the commercialization and utilization of Web services by users, publishers and ISVs. It has been specifically designed for the commercialization of Web services and focuses on the following:

- Comprehensive and flexible automated publishing process for Providers to sell and market their Web services innovations.
- Consistent and simplified user experience to discover, try, buy, understand and utilize.
- ISV and Solution Provider Marketplace API in the form of a Web Service to enhance their applications.

The following are some of the commercialization features available through the StrikeIron Marketplace:

- **Pricing flexibility** to work with any pricing and transaction levels whether a one-time purchase or monthly or annual subscriptions.
- **Simplified subscription sign-up** with all registrations managed in one place for easier administration.
- **Simplified billing** with all tracking, billing and account management managed in one place for both providers and users.
- **Simplified trials** with the same User Id/password for all Web services**.**
- **Automatic trial implementation for publishers** with trials, hits and expirations for each service managed with publisher-provided settings to facilitate user trial and conversion.
- **Transparent multi-protocol reconciliation** support (SOAP, REST, HTTPS) for more flexible access options.
- **Transparent pass-through authentication** with existing commercialization systems.
- **Automatic monitoring** and notification alerts.
- **Web Services Knowledge Base** for enhanced Web service documentation enabling users to deploy a published Web service faster and with greater satisfaction.
- **Support tools** to easily post sample applications, additional documentation and any other materials to facilitate fast conversion by potential customers.
- **Integrated access to the StrikeIron Web services tools** for easier and faster understanding and utilization.

For more information about the StrikeIron Web Services Marketplace please visit www.strikeiron.com.

StrikeIron Marketplace commercial Web services

StrikeIron Marketplace Web Services provide the broadest range of commercial business Web services from a single source and the coverage expands every day.

StrikeIron Marketplace Web Services Example Coverage

Financial Services	**Data Quality/Fraud**	**Messaging/Voice**
U.S. Sales Tax Rates	Global Address Verification	Mobile Text Messaging
	U.S. and Canada Address Verification	Global SMS Pro
Real-Time Stock Quotes	France Address Verification	Notify! (IVR)
Historical Stock Quotes	India Address Verification	
Delayed Stock Quotes	U.K. Address Verification	**Lead Generation/Reference**
Market Indices	Mexico Phone Verification	Exec Decision Makers DB
Mutual Funds		90Day Directory Assistance
Securities	Email Verification	Yellow Pages
Insider Trading	IP Lookup	U.S. Per Diem
Econometric Statistics	FraudLabs Credit Card Detection	U.S. Census Summary
EDGAR	Death Index	
Exchanges		**Utilities**
Futures	Do Not Call Listings	Electronic Data Automation
LMSecurities	PhoneIntel	Picture Comparison
Currency Rates		Hill Cipher/Decipher
Interest Rates	**Data Enhancement**	Caesar Cipher/Decipher
	24Hr Reverse Phone Lookup	Vigenere Cipher/Decipher
Company Information	24Hr Residential Lookup	
Zacks Company Profile	24Hr Business/Gov Lookup	MetarTranslater
Zacks EPS Summary	90Day Reverse Phone Lookup	Random Data Generation
Zacks Analyst Summary	Phone Number Enhancement	Web Services Search
D&B Company Info	ZIP Code Information	
ID Exec Executive Info	City, State by ZIP	Text Disguise Image Service
	ZIP Code Distance Info	
	Address Distance Calculator	
	Distance by 2 Coordinates	
	U.S. Geocode Information	
	Canada Geocode Information	
	Gender Determination	

If you are looking for a specific Web service to access external data or functionality that is not currently in the StrikeIron Marketplace, please contact StrikeIron at sales@strikeiron.com or call +1-919-405-7010. Your specific need may already be covered since the publishing of this document and/or we can help fulfill on your requirements.

StrikeIron Marketplace customer examples

The following are just a few of the many customer examples to illustrate how companies are taking advantage of the StrikeIron Marketplace Web Services today.

Customer	**Web Service**	**Application**
Web site retail vendor	Sales & Use Tax Rate	Web site application that calculates taxes to complete a purchase in real-time
Software developer	Text Messaging	Used to demonstrate their Web service capability to customers
Retail vendor of vehicles	Do Not Call	Real-time checking for sales call compliance

Customer	Web Service	Application
A public organization	Email Address Verification	Email checking to reduce registration errors and improve contact effectiveness
A college	Text Messaging	Provides real-time communication to students regarding alerts and changes in schedules
Web site lead generation	Email Address Verification	Quick verification to remove time wasting bogus emails or incorrectly entered emails for more productive quality leads
Catalog vendor	Address Verification	Real-time address verification to reduce costs of mailing out new guides
Web site vendor that also has hard copy catalogs	Email and Address Verification	Real-time verification of email and addresses on Web site to reduce cost of catalog mailing and improve contact effectiveness
Web site retailer of printing solutions	Address Verification	Real-time address verification on Web site to improve lead and contact effectiveness
Retail vendor of perishable goods	Address Verification	Real-time requirements for geo-coding parcels across the U.S. for more cost effective delivery
Law firm	Address Verification	Quickly determine county of record for more effective case work
Resort	Text Messaging	Up-to-the-minute ski condition information for higher customer satisfaction and to motivate skiers to visit more often when there are good conditions
Software vendor	Financial Services Solution Set	Integration of real-time stock market analysis to supplement an analysis package and allow for better financial decisions
Business data vendor	Email and Address Verification	Real-time email and address verification to improve lead quality and productivity of their sales force at a lower cost
Communications company	Text Messaging	Provide real-time notification of grades and other class related messages at college campuses
Consultant for a B2B vendor	Business and Government Lookup	Help a client get current and accurate phone and address information
Automobile vendor	Email Verification	Web site verification to improve the quality of leads and not waste time on bounce backs
Vacation vendor	Do Not Call List	Real-time verification to only spend time on qualified call lead lists

Summary

Companies need to reconsider how they extend their SOA implementations and internal applications to integrate external data and functionality. This is being driven by the need to react faster to ever changing market dynamics in order to improve productivity, be more cost efficient and be more competitive.

Commercially available XML Web services can address these issues by providing plug-and-play functionality to access real-time and on-demand data and functionality. In addition, new pay-as-you-use business models provide more cost efficient alternatives and flexibility than traditional models.

Web services are now commercially available for a broad spectrum of functionality and data access and can be utilized to access real-time company data, financial data, customer contact information, and many other forms of external business intelligence information.

Commercial Web services enhance internal applications with functionality such as global text messaging for communications with a company's field sales force and customers or integrating data enhancement capabilities for more productive customer, partner or competitive data.

Commercial Web services provide the fastest, easiest and cost efficient way for companies to build plug-and-play on-demand capabilities, build a competitive edge, and provide additional value to their customers.

The enablement of commercial Web services has occurred because of the emergence of an eCommerce platform with tools and services specifically designed for Web services commercialization. The fulfillment of this requirement is realized through a Web services marketplace.

The **StrikeIron Web Services Marketplace** provides online services for selling (publishing) and buying (subscribing to) commercial Web services from multiple providers. It brings together all the necessary components to build a viable commercial industry through the enablement, commerce, and utilization of Web services-based data access and functionality in a trusted environment.

Companies benefit from a Web services marketplace by having a single place with a consistent user experience and management system to subscribe to multiple Web services to meet their business model requirements.

As a result, companies can now extend and improve their SOA implementations and internal applications for greater productivity, greater efficiency, and real-time and on-demand integration into their business intelligence and CRM applications for better decision making and improved customer responsiveness.

The **StrikeIron Web Services Marketplace** makes this happen with the broadest spectrum of available commercial Web services and specifically designed infrastructure for companies to easily and quickly take advantage of this new solution for integrating external data and functionality.

About the Authors

For More Information

For a free trial and more information about the StrikeIron Web Services Marketplace please visit www.strikeiron.com or email StrikeIron at sales@strikeiron.com or call +1-919-405-7010.

About Bob Brauer

Bob Brauer is the CEO, President and co-founder of StrikeIron. Prior to StrikeIron, Mr. Brauer was the founding Chief Executive Officer for the DataFlux Corporation, an innovative database management software company acquired by SAS Institute. Mr. Brauer is a frequent guest speaker at software technology conferences and has appeared as an author in several industry publications, including Web Services Journal and Webservices.org. In 2004, Mr. Brauer received the Triangle Business Journal's 40 Under 40 Leadership Award. Mr. Brauer holds a B.S. in Computer Science from Ohio State University and can be reached at bob.brauer@strikeiron.com or by calling +1 919 405-7010.

About James Neiser, Ph.D.

Dr. James Neiser is the Principal of NetValue Enterprises, LLC focused on working with emerging technology companies on strategy and business planning. Dr. Neiser was instrumental in working with the founders of StrikeIron as its interim CMO to bring the StrikeIron Web Services Business Network to market. Prior to StrikeIron, Dr. Neiser was the interim CEO of YellowBrick Solutions and the Senior Vice President and Chief Marketing Officer of Red Hat. He held a variety of VP positions at IBM including VP of WW Channel Marketing for the IBM Software Group and VP of Marketing for various IBM software business units. Dr. Neiser has a Ph.D. in Cognitive Psychology from Oklahoma State University and can be reached at netvaluellc@aol.com or by calling +1 919 280-9083.

About StrikeIron

StrikeIron is the leader in the commercialization of Web Services, providing the world's largest library of externally available plug-and-play Web services. Built on top of a sophisticated, yet easy-to-use Web Services Commerce Platform, the Marketplace serves as a place for providers and consumers of XML-based Web services to publish, subscribe to, and build applications and Web sites using a diverse set of Web services.

Enabling a business model for the Programmable Web, the core technology provides self-service publishing and consumption of Web services, micro-transactions and usage-based billing, software infrastructure, multiple productivity tools, seamless integration for both individual customers and software technology partners, and a consistency of usage from multiple Web services across multiple vendors. The Aurora Funds, Inc. and NC IDEA provided funding for StrikeIron after recognizing the significant opportunity to invest in a technology firm leading innovation of the Programmable Web and Web 2.0.