StrongMail® Email Integration Server Technical Whitepaper

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StrongMail

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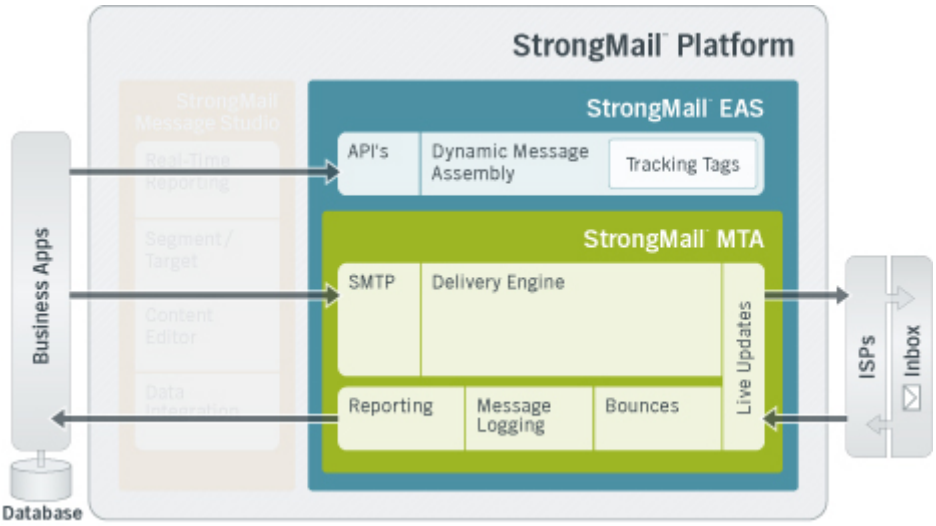
Introduction

StrongMail Systems has pioneered the email application server; StrongMail Email Integration Server is the industry's first complete, fully integrated infrastructure solution for outbound email. Companies use StrongMail to email-enable disparate business assets and deliver marketing messages, order confirmations, and other transactional communications seamlessly and in real time. StrongMail Email Integration Server features StrongMail EAS, which combines state-of-the-art StrongMail MTA software with technology to enable integration, dynamic message assembly, delivery, reporting and tracking – all within a single "rack-ready" server appliance.

StrongMail EAS leverages a Service-Oriented Architecture (SOA) for easy integration with any business system via Web Services (SOAP/XML) or SMTP. Leveraging StrongMail EAS's powerful integration and MTA technology, StrongMail Email Integration Server easily exceeds the performance requirements of even the most demanding enterprises and service providers with the ability to assemble, deliver and track over one million highly-dynamic messages per hour on a single server.



Patent-pending Technology

StrongMail's patent-pending AMP Technology™ (Asynchronous Memory-based Processing) uses advanced asynchronous memory-based queuing for increased throughput, intelligent delivery and real-time optimization and reporting. Plus, with StrongMail's asynchronous, component-based architecture, components can be deployed across multiple servers for high scalability, redundancy, application flexibility and security-policy compliance.

Highly scaleable and flexible to keep pace with your changing business needs, as well as the demands of the marketplace, StrongMail Email Integration Server

is ideal for enterprises and service providers that require effective email communication to achieve business results.

Sample Use Cases

Using the power and functionality of StrongMail Email Integration Server's integrated platform, you can create and execute email programs to achieve virtually any communication objective. Some examples include:

CRM and Marketing

Customer Retention Programs

By analyzing click-through data captured by StrongMail's Tracking Server, you can easily measure and increase customer satisfaction with each successive campaign. StrongMail EAS enables you to track positive responses to your offers, as well as opt-in and opt-out requests, clicks, opens, and other recipient actions. And you can automatically import StrongMail EAS's detailed reporting logs into existing business intelligence and analysis tools for further examination.

Newsletters

StrongMail EAS can centralize information from virtually any data format or source – including databases, CRM systems, web site content, Web services, and XML/XSL feeds – and quickly prepare it for use in email communications with a custom graphical interface. You can dynamically assemble message content at rates exceeding one million emails per hour. Plus, reap the benefits of high-volume one-to-one email communications by tailoring your newsletters to each subscriber, reflecting their individual preferences and opt-in categories.

Customer Acquisition Campaigns

StrongMail EAS enables you to send test offers targeted by attributes such as zip code, customer purchase history, etc. As click-through responses arrive, you can quickly integrate the metrics into existing reporting systems, allowing for precise measurement of customer preferences and "tuning" of subsequent mailings to those customers. You can also trace campaign success to specific copy, links, images, and other creative elements, yielding higher revenues and profitability.

Targeted, Event-Based Surveys

StrongMail EAS can be configured to allow you to interact with customers through email or SMS by asking their opinions on timely issues. You can easily log these responses and integrate them into future messages targeting specific customers with specific preferences.

E-Commerce & Financial

Statement and Electronic Invoice Automation

With StrongMail EAS, you can automate regular email communications with your customers, such as financial statements, purchase histories or reservation confirmations. Through StrongMail EAS's easy-to-use graphical interface, you can schedule the timing and frequency of these regular mailings, ensuring customers receive exactly the information they want, when they want it.

Stock Quotes and Notifications

StrongMail EAS's API server facilitates "event-based" messages, allowing you to notify customers immediately via email or SMS when, for example, a stock reaches a certain price, a deposit is received, or a check has cleared.

Message Receipt Verification

With StrongMail EAS's centralized tracking system, you can easily and quickly review which email recipients read your HTML messages and when. This supports non-repudiation and provides proof that a particular recipient opened the email at a specific time.

Full Audit Trail

Because StrongMail EAS centralizes the tracking of all email activity, including sent messages, opens and clicks, you can easily segregate this data by customer, creating a unique purchase history or profile for each customer and a complete record of their account activity (to aid in Sarbanes-Oxley compliance).

Customer Service and Call Center Support

Personalized Subscription Services

You can personalize messages to your customers based on their specific subscription preferences, instead of simply sending the same generic email message to all customers on a regular basis.

Electronic Publication Delivery

With StrongMail EAS you can send attachments to your customers as part of either an event-triggered mailing or a high-volume deployment. And StrongMail EAS tracks the delivery in real-time, integrating this data into virtually any reporting system.

Automated Product Update/Upgrade Notifications

Have a new product or upgrade that customers have been anxiously awaiting? Take advantage of StrongMail EAS's Web services interface to automatically trigger targeted email alerts and ensure that customers always receive the information they want, when they want it.

Human Resources Employee Communications

If yours is a large enterprise, count on StrongMail EAS to help you centralize employee communications. Your HR team can create custom campaigns to employees to communicate specific departmental needs, benefits updates or work histories.

Direct Deposit Electronic Notifications

StrongMail EAS makes it easy to notify your employees of direct deposit disbursements by automatically triggering custom mailings to each employee. You can personalize each message with bank account information and the amount of each deposit.

Wireless Communications and Email Notifications

Flight-Change Notifications, Confirmations

Take advantage of StrongMail EAS's SMS capabilities to immediately notify customers, wherever they are, of important flight schedule confirmations or changes.

Concert and Sporting Event Announcements/Offers

StrongMail EAS enables you to provide customers with up-to-the-minute information, via SMS messaging, on a wide variety of topics: concert events, sports scores, and any other offers where even email is not fast enough to meet customer expectations. StrongMail MTA can bring immediate, measurable value to a wide variety of applications across the enterprise.

Key Features Summary

StrongMail EAS Components

▪ **Platform**	Performance, patent-pending technology and platform architecture
▪ **Integration**	Connect StrongMail EAS to existing business applications with Web services APIs
▪ **Dynamic Message Assembly**	Personalization, dynamic content and attachments
▪ **Delivery**	Messages, media and documents; differentiated sending, inbound messages and compliance controls
▪ **Live Updates**	Up-to-date settings and delivery definitions from the StrongMail EAS Delivery Operations Center
▪ **Tracking**	Message delivery, archiving, recipient response tracking, regulatory compliance
▪ **Reporting**	360-degree view, 100% visibility; delivery accounting, business analytics tracking, system performance
▪ **Multi-Server management**	Multi-server deployments, email optimized load balancing and global management
▪ **Administration**	System administration via web interface, command line interface (CLI) and network monitoring tools such as SNMP and real-time XML monitoring

Feature	Benefits
Platform	
• Performance	**Dynamic Message Assembly** • 9.2M MPH @ 3KB message size (30 personalization elements) • 8.1M MPH @ 15KB message size (30 personalization elements) • 6.9M MPH @ 30KB message size (30 personalization elements) **Delivery Throughput (IQMP)** • 3.6M MPH @ 3KB message size • 2.0M MPH @ 15KB message size • 1.0M MPH @ 30KB message size **Delivery Throughput (SMTP)** • 3.2M MPH @ 3KB message size • 1.4M MPH @ 15KB message size • 1.0M MPH @ 30KB message size

Feature	Benefits
	Inbound Throughput • 2.1M MPH @ 15KB message size **Tracking Capacity** • 520 requests/sec. (1.8M requests/hr) @ 1.9ms request time
• Patent-pending AMP Technology™	StrongMail's patent-pending AMP Technology™ (Asynchronous Memory-based Processing) utilizes advanced asynchronous memory-based processing for dynamic message assembly, queuing for increased throughput, intelligent queue-level load balancing, delivery and real-time optimization and reporting. Traditional message transfer agents are shackled by the hard-disk as its central bottleneck. Typically coupled together with custom developed code for message assembly, tracking and management, then clustered using third-party web-optimized load balancers (not email optimized), traditional email infrastructure is forced to assemble, queue, deliver and retry messages by storing, rearranging and rewriting them on disk. StrongMail's revolutionary approach moves all of this processing into memory, thereby removing the disk I/O bottleneck and providing greater performance and, more importantly, a platform to apply real-time intelligence, reporting and optimization. As a fully integrated end-to-end infrastructure, StrongMail even performs in clustered environments. With functionality from message assembly to multi-server load balancing to delivery on separate physical servers, StrongMail leverages shared memory across separate physical servers to streamline the sending process. Further, traditional email infrastructure approaches do not allow for asynchronous processing – a critical element for message assembly and delivery to remote hosts. Unlike traditional MTAs that assemble one message at a time, injecting each into an SMTP server and delivering messages in a linear fashion, StrongMail's core reactor manages thousands of concurrent activities at once (for assembling, delivering, tracking, load balancing and queue optimization in an asynchronous, concurrent fashion). For example, in the event of a slow or broken receiving mail domain, unlike traditional approaches that would result in blockages, outages or poor performance, StrongMail would remain unaffected. StrongMail's asynchronous, non-blocking architecture provides for the enterprise-class reliability and management needed in today's complex environment.

Feature	Benefits
• Intelligent Queue Management Protocol (IQMP)	StrongMail's patent pending IQMP offers significant improvements over SMTP by providing bi-directional communications between separate physical servers. SMTP is a uni-directional protocol for submitting messages into an MTA. The disadvantage of this is that it is a "fire and forget" type protocol, meaning that once the message is injected, there is no way to manage that message, report on it or re-route it once it has been accepted by the MTA. IQMP, on the other-hand, is a bi-directional protocol that submits messages as "jobs" into StrongMail servers responsible for delivering the message. The state of the message is managed globally across multiple delivery servers. The advantage of this is threefold: it can easily load balance messages across multiple servers at the queue level; it provides for disaster recovery in the event that a delivery server (acting as an MTA) fails; and it provides a mechanism for centralized, real-time reporting. At the same time that IQMP is submitting messages for delivery, it is also receiving information in real time about message delivery success or failure, queue state and performance, and health information. StrongMail uses IQMP to intelligently load balance email based on the health and queue status of the delivery server. The end result is higher performance, complete redundancy and centralized management at the mailing level.
• Asynchronous Component-Based Architecture	Components can be deployed on separate physical servers for higher scalability, redundancy, application flexibility and security-policy compliance.
• Open-Standards Based	StrongMail has been designed based on the best principles of a Service Oriented Architecture (SOA). SOA enables StrongMail to serve as an open, flexible platform, operating as a "service on the network" that easily adapts to customer demands. StrongMail leverages open-standards based technologies and protocols such as: Web Services, SOAP, XML, SMTP, ESMTP, SNMP, FTP, HTTP, HTTPS and DNS. Additionally, StrongMail has integrated and optimized leading open source, supporting technologies such as BIND and Apache. All log files, data integration points and configuration files are plain text based for easy, customer-defined integration and simplified management.
• Hardened, Secure Platform	StrongMail was designed from the ground up with enterprise-class performance and security as a top priority. The result is a fully hardened, secure platform that does not have the same vulnerabilities found with many traditional, open-source/freeware tools.

Feature	Benefits
Integration	
• Service Oriented Architecture (SOA) Integration Layer	StrongMail acts as a service on the network – universally accessible to all applications, data and systems – for generating, deploying and sending email. StrongMail's SOA integration layer provides a rich and robust set of interfaces that enable integration with point solutions or with vertically integrated enterprise applications. Workflows, data and control can be orchestrated between heterogeneous applications and StrongMail, creating robust, closed-loop systems for creating and delivering messages and providing response and performance statistics back to content-originating applications.
• Web Services	Using the integrated Web Services SOAP/XML API, StrongMail can provide enterprise-wide services for any application requiring high performance email automation for personalization, delivery, tracking and response management. StrongMail's Web Services APIs enable seamless messaging integration for business applications. Access Methods: SOAP (Simple Object Access Protocol) and XML (Extensible Markup Language)
• Fully SMTP/ESMTP Compliant	StrongMail features drop-in integration with any SMTP- and/or ESMTP-compliant application(s). StrongMail supports SMTP pipelining. Pipelining is the ability to send more than one SMTP command per network packet, thereby reducing the delay introduced in the SMTP dialog by network latency or congestion. The concept is simple and allows for certain SMTP commands to be sent in batches without waiting for return or error codes. For larger network installations, SMTP pipelining could significantly improve the performance of mail systems with large amounts of network traffic.
• Data Accessibility	StrongMail stores and receives information in plain-text format, making data accessibility and integration easy for export/import with any system. StrongMail provides a simple way to transfer files into and out of the system. Input files may include: email lists, message templates, email content, attachments or dynamic content Output files may include: bounce logs, tracking logs, archived email logs, delivery success/accounting logs or mailbox data Data is easily accessible using many common, standard methods such as FTP, SFTP and SCP. Additionally, StrongMail can be set up to store and access data via NFS or NAS (Network Attached Storage).

Feature	Benefits
• Security	StrongMail provides a number of application-based security options for integration, including user authentication or host-based access rules. **Web Services Access** • User Authentication • Host Based **SMTP Access** • User Authentication • Host Based
• Send Options	StrongMail is designed to operate in multiple deployment modes on an email-by-email basis. It can be used to deliver and manage one message at a time or millions of batched mailings concurrently. • Single send: submission either through SMTP or Web Services – to submit one message at a time • Batch send: deployment of large lists via Web Services to deliver hundreds, thousands or millions of emails across one or a cluster of servers. Batch sends are managed at the mailing level and can be reported on, managed and controlled by batch job.
Dynamic Message Assembly	
• Multi-Part Formatting	StrongMail supports multi-part formatting for messages that require multiple formats, including HTML, Text, SMS, and AOL. StrongMail automatically formats and encodes messages for standard email reader applications to ensure full RFC compliance.
• Advanced Personalization & Mail-merge	StrongMail's token-based personalization features easy to use tools for mail merging. Messages can be personalized through the use of inline tokens based on recipient attributes or global values supplied by replaceable tokens within a message template. *Example: Dear ##first name##*
• Advanced Dynamic Content	StrongMail enables you to generate highly sophisticated, one-to-one communications that are as sophisticated as your web site. Integrated support for Extensible Markup Language (XML) and Extensible Style Sheets Transformations (XSLT) provides the ability to create highly sophisticated rules-based content rendering. *Example:* <xsl:choose> <xsl:when test="StrongMail/member_level='gold'">

Feature	Benefits
	Since you signed up for our gold package ... </xsl:when> ... <xsl:otherwise> To gain exclusive access to our facilities … </xsl:otherwise> </xsl:choose>
• Personalized Tracking Links	One of the advantages of having a fully integrated infrastructure platform is having the tracking and message assembly components as part of the system. Tracking links (e.g. opens, clicks, etc.) can be personalized on an individual, user-by-user basis, providing the ability to perform in-depth reporting at the individual receipient level. Any number of fields from the original data souce (e.g. databases) can be used to personalize each tracking link so that information can be carried all the way through the system – from message assembly to delivery to opens and click tracking.
• Attachment Encoding	StrongMail provides attachment encoding technology as part of the message assembly process. Attachments can be used for applications such as statements, software updates and document delivery. Common attachments may include: PDF, Word, Excel, ZIP files, etc. StrongMail performs all of the Base 64 encoding and MIME-encoding necessary to ensure full RFC compliance for attachment delivery.
• Anti-Spam Content Scoring	Find out whether your emails will pass the client-side and corporate-filtering systems that matter. Increase your delivery rates across corporate domains and check your mailings against the corporate filters used by more than 60 percent of the market. Use before you hit “send” to see whether your message will get delivered and to understand the reasons behind any failures. Then, monitor email delivery during your email events. Continually learn what corrections you need to make to your system and content to ensure your messages get delivered.
Delivery	
• Virtual Routing	Virtual routing enables you can create ‘classes of service’ similar to the different classes of postal mail. For example, virtual routing enables you to ensure delivery of your most critical transactional email by separating it from high-volume promotional email that could potentially be blocked as spam. Example classes of mail could include: • Marketing • CRM • Corporate email • Transactional email (e.g. order confirmations) • Human Resources email

Feature	Benefits
	In addition to mail type, virtual routing can be used by large organizations to separate divisions, entities or departments. For example, a large banking organization could have: • SomeBank Corporate • SomeBank Credit • SomeBank Investment Banking • SomeBank Mortgages • SomeBank Commercial For service providers, this feature is critical for managing multiple customers on common infrastructure. It can be used for separating email by customer to protect deliverability reputation and for providing segmented, use-based reporting for customer service, operations or billing purposes. In an increasingly complex environment of sender authentication standards and reputation services, virtual routing enables you to define and utilize different combinations of IP addresses, sender identification standards, and reputation or whitelisting services based on your needs. The type of mail being sent will dictate the type of the virtual routing to use. For example, you might use priority routing for transactional email such as financial statements or premier customer programs, while using other streams for promotional campaigns and newsletters. StrongMail's virtual routing technology simplifies administration of the myriad of permutations needed – applying the right service to the right message for the right ISP – making it simple and cost-effective for users to apply these services to their mailings. The results: improved predictability in delivery rates and simplified management of your reputation as a sender.
• Domain/MX Throttling	Domain/MX throttling enables you to tailor email delivery to match the technical specifications of ISPs and corporate networks. This feature can be used to throttle sending speeds, limit the number of connections, set per-domain/MX timeouts or control other policies on a per-domain/MX level. These settings differ from network to network, depending on the size and resources of each. StrongMail's state-of-the-art compliance technology makes these policies easy to manage by adapting to them as quickly as they change. Combined with StrongMail's live update technology, these settings enable optimal delivery health and receiver compliance. *See Live Updates for more information.*
• Accreditation and Reputation Support	StrongMail offers full support for major accreditation and reputation services. These services work with email senders and receivers to provide accreditation checks of email senders. These checks confirm to the major ISP receivers and anti-spam solutions that the sender is compliant with CAN-SPAM and has 'good' email policies for creating, managing and tracking opt-in lists (and that the sender has acceptable reporting capabilities). A reputation service works in reverse, by tracking receiver feedback on emails – whether good or bad – to block, filter or remove spam emails (as determined by the receiver community).

Feature	Benefits
• Authentication Standards	StrongMail supports new and emerging standards aimed at reducing spam and stopping "phishing," StrongMail is committed to the full range of standards, including Sender ID, SPF, Domain Keys, and IIM. StrongMail is the only infrastructure solution offering senders this range of options, capabilities and performance. It provides the best in throughput and deliverability while minimizing the operational costs of delivering email to the inbox. Full support for current and emerging authentications standards includes: • SPF (Sender Policy Framework) – this is the earliest of the authentication offerings and is now in use for over 25 percent of business email. • Sender-ID – this open standard was launched by Microsoft and is an extension of and improvement on SPF. StrongMail Systems was one of the first companies to support this standard and worked directly with Microsoft and other interested parties to launch the standard. • Domain Keys – This initiative, launched by Yahoo!, aims to sign all email with a domain-level digital signature to confirm that the message really came from the purported domain. • Domain Keys Identified Mail (DKIM) – This initiative merges Yahoo's Domain Keys with Cisco's Identified Internet Mail (IIM). The resulting DKIM standard is expected to be a superset of Domain Keys, allowing verification of sub-domains as well as domains, and providing businesses protection against phishing attacks. As we work toward a public IETF standard, StrongMail continues to play an active role within the working group for Domain Keys, IIM and DKIM.
• Inbound Mailboxes	Mailbox types may include: ▪ Bounce mailboxes (for asynchronous bounces) ▪ Unsubscribes mailboxes ▪ Complaints/Feedback Loop mailboxes ▪ Reply mailboxes StrongMail supports multiple domains and hosts and any number of mailboxes. Specialized mailboxes, such as bounce mailboxes, store incoming mail for analysis by StrongMail's bounce management software. *See Smart Bounce Management.* All incoming email is stored in standard mbox format making it universally accessible by third-party open standards-based utilities and applications for analysis and management.

Feature	Benefits
• Media/Content Server	StrongMail offers a fully integrated media and content server for delivering images, web pages, attachments, documents, and audio/video associated with email messaging. Additionally, the media and content server can be used to store web pages, forms and other web-related documents for email correspondence. StrongMail's media and content server is 100% Apache-based and is optimized for email delivery.
• Message Priority by Server Class	StrongMail can categorize server types by mailing class to create different priorities for message queuing and delivery. For example, time-sensitive email is organized in dedicated mail queues to ensure that it is delivered instantly.
• Flexible Recovery Options/Settings	StrongMail provides a range of options for controlling persistent message storage and deferred message delivery, providing greater flexibility and options for managing performance and deliverability. Messages can be in memory only, stored to disk, or stored to disk for deferred delivery. This gives senders a new dimension in managing performance and reliability over a range of messaging needs.
• Advanced Queuing Algorithms	StrongMail's smart queue sorting virtually eliminates the manual mail queue management that is typically required by traditional email software. StrongMail will sort messages into queues based on critical factors such as receiving domain, virtual server groups, and sending StrongMail servers and networks. As part of the process, StrongMail will intelligently load balance sending across all available receiving MX servers by domain and will apply and optimize domain limits at runtime, providing further adjustment according to mail flow.
• Intelligent SMTP Connection Management	StrongMail's algorithms optimize the utilization of network TCP connections to remote email hosts. After hard-disk overhead, network connection management is next in line for handling email processing bottlenecks. StrongMail technology optimizes connection needs, intelligently queues messages, and reuses network connections to particular domain/mx servers – all enabling you to boost performance, optimize efficiency and improve delivery rates.
• Advanced Asynchronous DNS Caching	100% BIND-based for compatibility with existing BIND configurations. DNS caching has been tightly integrated with StrongMail mail processing algorithms for higher performance and greater stability. StrongMail also provides for application-level caching of DNS entries, thereby avoiding excess DNS queries. StrongMail's intelligent algorithms adaptively cache only servers with high reachability.

Feature	Benefits
Live Updates	
• Live Updates	In today's complex email environment, delivery parameters are changing on a regular basis, sometimes daily. It can be cumbersome dealing with monitoring, analyzing and "tweaking" traditional email software to keep up with these frequent changes. Furthermore, the state of constant change forces organizations to be "reactive" to delivery problems, rather than proactively ensuring delivery. Through a combination of factors – including feedback from StrongMail's customer network, industry trend analysis, delivery monitoring and tight relationships with ISPs and anti-spam vendors – StrongMail's Delivery Operations Center maintains a constant pulse on the latest know-how in email delivery. StrongMail converts this knowledge into proactive updates to stop delivery and tracking problems before they occur. Similar to virus-definition updates, StrongMail's Live Updates can be applied to live systems resulting in continuous operations and zero down-time.
• Domain/MX & ISP Mail-Flow Settings Updates	25% of legitimate email goes undelivered. StrongMail continually updates ISP and corporate network delivery parameters that change frequently, such as recommended domain/MX throttle configurations. This unique feature keeps your StrongMail system up to date with ever-changing connection management, so you don't have to. *See Domain/MX throttling for more information.*
• Bounce Filters Definition Updates	According to Jupiter Research, 33% of email addresses change on an annual basis. Due to several factors – an influx of new anti-spam solutions, ISP changes and new inbound email solutions being developed on a daily basis – there are hundreds of reasons why email messages "bounce." Many receiving domains are no longer following standard RFC codes for failures as part of a block-and-tackle method to prevent spammers from infecting their networks. As these bounce reasons change, StrongMail provides updates to the bounce filter definitions to ensure data hygiene, improved delivery, and consistent and accurate reporting. *See Smart Bounce Management for more information.*
• Actionable Response Information	New industry information and trends are constantly being discovered and created. StrongMail provides reporting and system management in the form of "actionable information." This means that information combined with suggestions that can be used to improve a business process related to mail management. For example, if StrongMail reports than an excessive amount of email addresses are "user unknown", then StrongMail would make suggestions on the address capture/sign-up process (such as an email confirmation for the address prior to emailing). StrongMail would also educate you on the disadvantages of not correcting the process (such as risk of being blocked by certain

Feature	Benefits
	domains for a high percentage of bad addresses). This information is compiled by the StrongMail Deliverability Team to keep companies up to date with information to improve their business.
• Future	As the industry continues to evolve and email delivery becomes more challenging, the complexity of keeping current with the changes will increase. StrongMail's live update technology will continually expand to take advantage of the latest and greatest email delivery best practices, standards and compliance methods; this makes StrongMail installations future-proof from emerging challenges.
Tracking	
• Smart Bounce Management	According to Jupiter Research, 33% of email addresses change on an annual basis. Analyzing and categorizing bounced/failed messages and addresses is critical for business operations. Understanding the cause of a failed message will affect the way a business process is executed. There are hundreds of reasons why messages bounce – and these reasons change constantly and they vary by receiver domain and language. For example, there is a big difference between an "out of the office reply" (where someone most likely received the message); a "user unknown" (where you will never be able to deliver a message to that recipient); and a "blacklist rejection" (where you need to take some type of action to remedy your sending network before re-attempting delivery). This information is critical for managing delivery reputation, ensuring accurate statistics and protecting database integrity. StrongMail offers the most robust, actionable bounce tracking available today. With StrongMail, you will know what happened to both synchronous and asynchronous bounces. • Synchronous bounces: failed delivery that occurs *during* the SMTP transaction. • Asynchronous bounces: the message is initially accepted by the receiving server, but later returned to the StrongMail server after some period of time (ranges from a minute to days). StrongMail's live update technology ensures that hundreds of ever-changing ISP and corporate mail server bounce codes are continually updated in your StrongMail software. *See Live Updates.*
• Recipient Response Tracking (opens, clicks, unsubscribes)	StrongMail provides for a flexible, open message tracking system for collecting and monitoring message recipient responses. These responses can include a user opening a message, clicking on a link (or multiple links) and performing specific actions such as unsubscribe for marketing messages.

Feature	Benefits
	The tracking system allows you to collect any number of customer-defined fields and values during the tracking transaction. Examples may include a user ID, email address, shoe size, message content ID, message type, state, hair color, and more. The possibilities are endless. StrongMail can also track individual links in messages to allow for separate reporting on each link or on each action taken. For example, an email message may include a link to customer service and a link to dispute a transaction. StrongMail can track these links and their intent separately. Further, with StrongMail's focus on email delivery compliance, all tracking tags are designed in such a way that they will not accidentally trigger anti-spam content filters. Often, non-optimized tracking tags from custom-built software or commercial applications will trigger spam-filters because of the way they are set up and encoded.
• Outbound Message Tracking	Tracking outbound messages is becoming increasingly more important as email continues to become mission-critical to the enterprise. Frequently, regulations such as Sarbanes-Oxley (SOX), HIPAA, FTC transaction regulations or CAN-SPAM require full accountability for all correspondence with customers, partners or employees. StrongMail's outbound message tracking options range from archiving a full copy of each and every message delivered through the system to keeping a timestamp, full headers and ID of every message delivery attempt, success and failure.
• Custom Header Tracking for SMTP submission	StrongMail is built to integrate with existing email applications (CRM, ERP, e-commerce, etc.) injecting pre-formatted messages into StrongMail via SMTP. StrongMail enables you to parse custom headers to extract any unique user or transaction ID field within the header fields of an email and add them to all log entries generated (success, failure, bounce). This allows for easy, direct integration of results back into the original application. Additionally, the information can be used for creating reports by segments of mail streams and individual transactions for accountability purposes.
• Inbound Message Tracking	An important part of delivering mail involves handling the email that is sent back to the delivering system. StrongMail provides inbound email processing components to deal with common inbound mail streams. StrongMail can track incoming mail for: bounces, unsubscribes, complaints/feedback loops and recipient replies. StrongMail provides utilities for analyzing, searching and categorizing inbound email. All inbound email is stored in standard mbox format for easy access.

Feature	Benefits
• Inbox Monitoring	Track deliverability of your mailings at the major ISPs. Learn right away when you are being blocked or filtered by ISPs. For each mailing you send, StrongMail provides a delivery status report, confirming that your mailing arrived, when it arrived, and in what folder it was placed (i.e. inbox or bulk) by the ISP.
Reporting	
• Real-time Reporting	StrongMail's architecture enables system-wide real-time reporting that provides information about mailings progress and statistics, as well as system performance. StrongMail provides real-time monitoring and reporting that gives you 100% visibility into all aspects of the delivery process; the system offers real-time progress tracking and results analysis on a per-receipient, per-mailing, domain, and system basis. The real-time detailed reports include analysis for measuring deliverability, receipt verification, click-throughs, performance statistics, bounce handling, failed deliveries and more.
• Bounce Management	StrongMail categorizes bounced and failed messages into detailed reports that can be used for performing diagnostics, providing business level reports and improving delivery. Bounce reports are broken down into 5 major categories and 26 subcategories.
• Recipient Response Tracking	Reports are provided on a per-mailing basis to track opens, clicks and unsubscribes. Sample report capabilities include: o Summary of opens, clicks, unique opens, unique clicks by mailing o Opens/clicks by day or date range o Top 20 domains (by clicks, opens) o List by mailing, database or content ID o Unsubscribe reports
• Per-Mailing	Real-time reports are available for actively running mailings and completed mailings. Examples of data available at the mailing level include real-time progress on total number of messages to send, number of messages sent/failed/succeeded, speed of delivery by mailing, opens, clicks, and unsubscribes.
• Mail Flow & System Performance	Reports are available to view mail-flow through the system and to track and monitor mail delivery performance. StrongMail is continuously interacting with receiving servers throughout the course of a mailing so you can monitor every crucial metric, including delivery speeds; per-domain successes and failures; bounce statistics; and overall connection health. Sample performance reports include: • Top domains by Queue Size • Top domains by Connections

Feature	Benefits
	• Top domains by Processing Time • Top domains by Messages Delivered • Top domains by Messages Failed • Speedometer and progress reports • Failures by All Domains • Failures by Top Domains • Complaints • Unsubscribes
• Plain-Text Logs, Extensive Logging Options	All StrongMail logs are created in plain-text format, making it easy to import them into any business system, database, data warehouse or reporting/business intelligence system.
• Deliverability Reporting (optional)	Track deliverability of your mailings at the major ISPs. Learn right away when you are being blocked or filtered by ISPs. For each mailing you send, StrongMail will provide a delivery status report, confirming that your email arrived, when it arrived, and in what folder it was placed (i.e.: inbox or bulk) by the ISP.
Multi-Server Management	
• Intelligent Queue Management Protocol (IQMP)	*See previous description in platform section*
• Centralized Management	A cluster of StrongMail servers can be managed centrally at the mailing level. This provides the ability to view mailing progress as well as control the mailing. For example, you can start, stop, pause, and resume mailings over multiple, distributed servers (locally or globally).
• Adaptive, Email-Optimized Load Balancing	Integrated and adaptive load balancing results in better scalability and recovery without sacrificing control. This capability helps process heavy email traffic among several servers and can handle the traffic of many simultaneous mailings at a time. For greater delivery throughput, simply add additional StrongMail nodes and the load balancing does the rest. Unlike traditional web load balancers that are load balancing based on system factors such as disk I/O, CPU utilization and memory utilization, StrongMail is unique in that it provides load balancing at a much deeper level: the email queues by domain. Load balancing email is very different than load balancing web requests. For example, by optimizing at the queue level, StrongMail can detect that a particular domain may be blocking or slow (which may go unnoticed since it might have little to no affect on CPU, disk and other factors) and respond by optimizing delivery accordingly. StrongMail leverages the benefits of IQMP's bi-directional features to centrally manage message processing state and gather health information from delivery servers to optimize load balancing in real time.

Feature	Benefits
	See IQMP above for more information.
• Centralized, Global Queuing	Mailing state is globally managed across a cluster of servers, which provides for a higher-level of fault tolerance and redundancy. For example, if one server fails, other servers can instantly pick up the mail processing without any manual intervention or burdensome queue management. Central queue management using IQMP eliminates the need to monitor and manage queues at the individual server level and eliminates the cost and tuning of an IP load balancer. StrongMail supports delivery through multiple StrongMail nodes in a distributed environment by providing automatic, adaptive load balancing.
• Central, Real-time Statistics	In a distributed multi-server environment, StrongMail offers centralized data management for consolidated, real-time management and reporting.
• Central Log Consolidation	All log and statistics data is consolidated into a single server, providing a complete system-wide picture of the results for all mailings and domains across all servers in a cluster.
• Global Virtual Routing by Cluster	StrongMail's virtual routing also works in a clustered environment. In addition to the standard features and benefits provided by virtual routing, global virtual routing provides for additional flexibility, redundancy and performance. Configuration examples for global virtual routing include: o Prioritization by mail type (e.g. transactional, time-sensitive email may have dedicated servers vs. promotional, non-time-sensitive email) o Routing by country (e.g. mail to recipients in Europe may come through a server in London) *See Virtual Routing for more information.*
• Dedicated Server(s) for Message Assembly and Load Balancing	Often times, companies choose to place message assembly servers behind their firewall (connected to their business assets) and the servers for message delivery, inbound email and tracking in their DMZ or outside of their firewall. This requirement is common to meet security compliance, redundancy and network configuration policies. StrongMail is a fully-integrated, component-based platform, making it easy to conform to the most demanding network architecture and requirements.
• Dedicated Server(s) Routing by Destination Domain	To optimize heavy traffic mail flow, StrongMail can be configured to route mail for specific domains to dedicated servers. For example, if 20% of all mail traffic is destined for AOL™, you can setup dedicated AOL delivery servers and all mail to aol.com will be routed through those servers.

Feature	Benefits
• Dedicated Server(s) for Inbound Email	Separating outgoing from incoming email can be a requirement for security-policy compliance or for performance and redundancy purposes. StrongMail provides the ability to separate inbound message processing (e.g. for bounces, reply messages, complaints/feedback loops and general purpose email) on separate physical servers from the outbound sending servers.
• Dedicated Server(s) Routing for Deferred Delivery	For delivering messages to slow or unresponsive domains, StrongMail offers the greatest flexibility of any solution. Unique to StrongMail is the option to distribute deferred messages to a separate physical server, maintaining maximum resources and performance for the majority of messages. This ensures that deferred messages from previous mailings won't slow down new mailings or throughput.
Administration	
• Quick & Easy Installation	StrongMail has been designed for operations ease and streamlined administration. The complete installation process – from downloading the software or unpacking the StrongMail Appliance to configuration and operation – can be done in 30 minutes or less.
• Setup & Configuration Wizard	The configuration wizard guides you through the process of setting all system directives. It concludes with a page that enables you to send a test message to confirm that system options are correctly configured.
• Web Management Interface	StrongMail's web management interface gives administrators a graphical way to configure, administer, maintain and monitor the StrongMail platform. The graphical browser-based user interface provides easy navigation, forms that eliminate the need to edit configuration text files, and embedded graphs in reports. The user interface provides easy access to system configuration, real-time status, system monitoring, live update application and in-depth reporting.
• Command Line Interface	Developed as an open platform, StrongMail provides total flexibility and control through its Command Line Interface (CLI). Through the CLI, administrators have access to all control files, configuration files, utilities, tools, log files and management applications.
• SNMP Interface	The SNMP interface enables third-party products to monitor the status and load characteristics of StrongMail processes and server utilization (CPU, memory, disk, etc.). This makes it easy to integrate into infrastructure and network analysis tools and automated failure notification systems.
• Real-time Monitoring – XML Admin Port	Real-time monitoring of system performance metrics provides system administrators with an immediate overview of server performance and enables them to quickly diagnose potential issues. For example, administrators can see how many

Feature	Benefits
	messages have been accepted from an injector application and how many have been delivered; plus they have visibility into other metrics such as the current snapshot of successes, failures, deferred messages, and overall delivery rate. This makes it easy to adjust system parameters or to take preventive actions as required. All of the information pertaining to StrongMail performance is provided in XML format, making it easy to create detailed reports in any XML-based reporting tool, including Microsoft Excel™.
• Scheduler	The scheduler provides a flexible and convenient means for timing the launching of mailings, scripts or jobs based on single events, or on recurring time intervals.
• Blacklist Alert (optional)	This service monitors your outbound mail server addresses. If you are put on a blacklist, StrongMail will immediately email you with information about the blacklist. StrongMail's Deliverability Team can help remove your company from the lists, if possible.
• Comprehensive Online Help and Documentation	StrongMail provides extensive online help through the web management interface for every configuration option, report and parameter. The online help is searchable and indexed for easy access. Additionally, StrongMail comes with a rich set of documentation for system administrators and application developers.

Availability

StrongMail Email Integration Server is a rack-ready appliance designed to deliver exceptional levels of performance, availability and manageability. Just connect the power and network cables and the appliance is ready to begin operation.

StrongMail EAS software is also available for download, upon request.

StrongMail® Email Deliver Server – Appliance Specifications

• Chassis/Processor	Form Factor: Dimensions: CPU: Power: Memory:	1U rack mounted chassis 1.7” (h) x 19” (w) x 30” (d) Two Dual-core Intel® Xeon™ processors Two power supplies 4 GB
• Storage	RAID: Drives:	Raid 1 configuration Two 146GB, hot-plug, SAS, 15K RPM
• Connectivity	Ethernet: Video: Serial:	Two RJ-45 (for integrated 1-Gigabit NICs) 15-pin VGA 9-pin, DTE, 16550-compatible
• Interfaces/Configuration	Web Interface: CLI: File Transfer: Configuration Files:	Accessible via HTTP or HTTPS; Configuration Wizard Accessible via SSH; Configuration Wizard SCP or FTP Standardized, text-based configuration files
• Monitoring & Management	Mail Monitoring: System Monitoring: Planned Outage:	Real-time XML Administration Port SNMP v1, v2c, c3 Suspend/Resume Deliveries
• Mail Operations	Mail Protocols: DNS:	SMTP, ESMTP Internal resolver/cache; Can resolve using local or Internet DNS servers

StrongMail® EAS Software - System Requirements

• Hardware	Dual Intel Xeon Processors 2.4 GHz or higher 2 GB of RAM or higher 30 GB of available hard-drive disk space or higher
• Operating System	Red Hat Enterprise Linux ES version 3.0

Find out if StrongMail Email Integration Server is right for you. Contact StrongMail Systems today at (650) 421-4255 or info@strongmail.com.