Executive Summary

This Whitepaper will attempt to address some frequently asked questions about the core differences between open source Mail Transfer Agents (MTAs) and commercial MTAs. The target audience consists of deliverability professionals, mainly senders who consider digital messaging a mission critical component of their company’s overall communication strategy. It will discuss the main differences between open source and commercial mailing platforms, and provide detailed insight to those considering the upgrade to a commercial MTA product. This paper will also explain why making the switch may qualify as a long term cost-effective investment and uncover where pain-points might currently exist in a company’s particular sending environment.

Other topics covered include:

- Overall throughput performance comparisons
- Streamlining account management
- Optimized delivery settings
- Management concerns
- Support infrastructure
- The increasing prevalence of issues with the knowledge transfer dynamic
- Pitfalls which exist among disparate technical user groups maintaining the MTA

Senders who are currently under contract at an Email Service Provider (ESP), as well as those just starting the provider evaluation process, would be wise to investigate the potential vendor’s delivery infrastructure before deciding which service provider to use.

The most notable component to consider is the message transfer agent (MTA).
Open Source vs. Commercial MTA

So why does an MTA matter?

An MTA is the backbone of any ESP's email delivery platform. It is responsible for most of the heavy lifting, in terms of not only accepting and parsing large message amounts, but also, concurrently, managing the intricate communication between disparate remote email gateways.

An important point to note, is that not all MTAs are created equal. For instance, there are providers who have implemented various forms of “open source” MTAs. These go by various names, including Postfix, Exim, Sendmail, etc. Many of them have been in existence for years. However, a majority of ESPs have moved away from open source MTAs and invested in the commercially-supported route by installing software like SparkPost’s PowerMTA. PowerMTA has been on the market since 2000 and is used by well over 125 of the leading ESPs on the market today.

Is there a substantial difference between open source and commercial MTA technology?

Well, as proponents of a commercial MTA, we at SparkPost feel that there are several differences and potential ramifications to consider when trying to decide between the two options. Four of these considerations are summarized below:

1. SENDING SPEED

Originally, open source MTAs were not designed to be high-performance delivery workhorses. Rather, they were created to perform more traditional tasks such as email account management. Meaning, ESPs and enterprises that still use this somewhat dated architecture have most likely built elaborate, proprietary, and complex server cluster farms to achieve tolerable performance for today’s hyper competitive delivery market. While today’s sending environments may require delivery rates of millions per hour, the most that a sender is typically able to generate from a single Postfix instance is about 250,000/hour.

This issue points to why commercial MTA’s help solve for larger senders. Commercial MTA’s have a much higher throughput on fewer servers. The new wave of commercial solutions have been designed to scale “out of the box”, so that a single server instance can reliably deliver many millions of messages an hour, if needed. These servers can effortlessly expand linearly so that the ESP or Enterprise can deliver several orders of magnitude more email in a condensed time frame.

2. MANAGEMENT STANDARDS

Deliverability managers at Enterprises and ESPs view “time” as either an asset or a huge liability. The amount of time and level of effort required to complete normal management tasks (spawning new instances [as ESPs bring on new clients], ensuring new IP addresses are properly warmed, maintaining per stream delivery settings, etc.) quickly adds up when working with customized code. The potential investment of labor hours in this case can be cost prohibitive and ultimately a liability. To combat this problem, commercially supported products such as PowerMTA provide highly efficient access to optimized configuration settings, so that new senders can be mobilized on demand, or the settings of existing customers can be modified promptly. The sheer flexibility and support infrastructure offered by commercial MTA products becomes irreplaceable when
you begin to evaluate the importance of scaling against the need to use human work time efficiently. Technology standards prove their worth as more processes are automated.

3. ONGOING MAINTENANCE AND IMPROVEMENT

As a sender, when selecting a particular ESP, you must evaluate its ability to provide advanced technology and services that will grow with your program goals. With a highly proprietary sending infrastructure, open source MTA code must be continually tweaked by programmers each time a functionality update is required. Open source MTAs rely on the community to make upgrades as they have time or bandwidth. It’s also uncommon for open source software to have a testing infrastructure that is robust enough to have a high level of confidence in new features or improvements. Commercial MTAs have teams of developers that constantly iterate on the product and have an incentive to release reliable, proven, well-tested code. For instance, what if an ISP in Germany is suddenly returning a new policy-based delivery error? How gracefully or quickly can a global fix be applied? Commercial MTAs, on the other hand, allow you to simply apply updates from the MTA vendor.

Commercial MTAs are able to create custom logic in a couple of clicks to handle the aforementioned example. ESPs also benefit from the insights that their MTA vendor can bring to the software. Additionally, regular updates from the commercial MTA vendor keep ESPs alert to the frequently changing requirements of ISPs.

4. KNOWLEDGE TRANSFER CONSIDERATIONS

At times, there seems to be a forgotten aspect of infrastructure maintenance; namely, how extensively has the proprietary knowledge spread throughout the ESP’s technical group? Here are a few questions you should ask as you consider this situation at your own company:

- What if this knowledge were to leave the company via job-hopping or a layoff, or a breach of some kind?
- Have all the proprietary aspects of the infrastructure been properly documented, to the extent that new employees could access and understand the information?

Through our experience, we have found that a surprising number of companies struggle with the “guru” dynamic, especially smaller providers. Today’s commercial MTA solutions ship with highly comprehensive configuration/monitoring/reporting GUIs that are quite easy for existing and new staff to learn. Therefore, with commercial MTAs, an ESP’s risk of losing architectural secrets is mitigated substantially, even if unforeseen staff changes occur. Given that unanticipated changes are fairly prevalent, knowledge transfer should be a distinct part of any management success plan.

Support Features

In addition to the four major considerations outlined above, commercial MTAs also boast numerous features which offer an unparalleled level of support and troubleshooting. Below is a brief summary of four of PowerMTA’s features—features that the vast majority of open source MTAs can’t match.

MONITORING

Most commercial MTAs have built-in monitoring support. This provides a straightforward and easily interpretable view of your machine’s health and performance. To monitor open source MTAs, it is often necessary to install some external monitoring tool, and then rely on whatever support is built into that tool for monitoring your mail server. Alternatively, you may end up writing your own monitoring software, or plugins for your monitoring software of choice. This becomes particularly problematic when you have multiple servers, and need to be able to monitor as an aggregate as well as drill down into individual servers.
ANALYTICS

Commercial analytics tools can be designed specifically for email. This means better insight and outcomes for both engineering and deliverability perspectives. Additionally, on-premises commercial MTAs can easily integrate with cloud analytics solutions such as SparkPost Signals combining the control and cost-effectiveness of an on-premises MTA with the machine learning and big data aggregation capabilities of the cloud. Attempting to leverage analytics with open-source software, or worse, opting to forego analytics creates a massive vulnerability in one of a company’s most valuable channels.

BOUNCE HANDLING

Modern commercial MTAs use sophisticated algorithms for handling bounces, which have evolved over years of experience. Because the SMTP RFCs often give unclear reasons why a mail may have bounced, commercial MTAs have created techniques for understanding responses from different types of recipient MTAs. These techniques provide the administrator of the commercial MTA with the tools to deal with bounces in an appropriate manner.

PER RECIPIENT DOMAIN SETTINGS

While some open source MTAs have some level of per-domain settings for outbound email, these settings are often rather complex to code—or sometimes don’t exist at all. Commercial MTAs largely arose from the need for large senders; thus, with a commercial MTA, flexible configuration on a per-recipient domain basis is a basic requirement, and a readily available feature in the PowerMTA product.

ADVANCED DELIVERY CONTROL FEATURES

PowerMTA has multiple features that help senders gain a high degree of control over their delivery campaigns that open source MTAs cannot match. These include:

1. Rate Limits for various parameters when delivering - number of messages, connections and data volume - across multiple dimensions such as source IP, destination domain etc.

2. Cold IP Warmup - automatically warming up a cold IP according to a preset schedule when paired with an existing warm IP address.

3. HTTP Submission/Delivery - integrate PowerMTA more easily with your existing application infrastructure through the use of REST APIs for submission and delivery of messages.

4. Forward Proxy Protocol support - simplify your MTA infrastructure deployment by separating delivery of messages from management of the source IP addresses used for delivery through proxied connections.

5. MX Rollup - simplify configuration management of deliveries for domains that deliver to the same underlying mail exchanges.

6. Authentication support - easily configure DKIM, SPF checks for incoming email, and rules for their disposition based on the results, as well as DKIM signing, TLS use and DANE check for outgoing email.
It is important to acknowledge that Email Service Providers based on open source MTA infrastructure actually do a stellar job of managing these highly complex systems. However, we on the commercial MTA side of the fence simply feel that senders who consider email delivery to be a critical component of their business require and deserve a solution that is better equipped to navigate the changing dynamics that currently face the industry as a whole.

SparkPost, the world’s largest email deliverability engine, enables the delivery of more than 37 percent of the world’s B2C email -- more than six trillion messages annually -- helping organizations drive top-line digital marketing results. SparkPost’s analytics cover 90 percent of the world’s email footprint, giving companies deep insight into email deliverability and engagement analytics. Companies including Zillow, The New York Times, Booking.com, Adobe, Rakuten, and Zynga use SparkPost’s engine for their email communications, significantly increasing email marketing performance. Learn more at www.sparkpost.com or connect via Twitter, LinkedIn or the SparkPost blog.