

OpenText™ Exstream Messagepoint Architectural Overview



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Introduction

OpenText Exstream Messagepoint is a hybrid cloud-based content management platform serving the communications management needs of large enterprise customers. It provides an intuitive and secure environment for business users to directly own and control touchpoint messaging content and business rules driving the pace of change for customer-facing communications.

With Messagepoint, content stakeholders can create, modify and approve customer messaging content and targeting rules in customer touchpoints across channels through an intuitive cloud-based application. The approved content and rules are then packaged and downloaded to a secure network where an established on-premise production environment handles delivery via print, SMS, email, web, or other channels by processing private customer information, which remains secure within the production environment.

Hybrid Cloud

Messagepoint was built to address the need for an easy-to-use, collaborative, cloud based environment, with the customer data security requirements of the enterprise through its hybrid cloud model.

With critical elements of touchpoint delivery still residing within the four walls of the secure corporate or service provider environment, Messagepoint was designed with a light-weight on-premise footprint that interacts with customer data feeds and your existing delivery systems, such as composition tools, or email systems to drive the rules and content into your customer touchpoints.

Exstream Messagepoint's hybrid approach ensures a secure, reliable connection to any production environment you require to deliver approved content and rules, as timely as you need them.

Secure, Reliable Hosting

Exstream Messagepoint is securely hosted in its own secure Virtual Private Cloud (VPC) within Amazon Web Services (AWS). AWS has been recognized by numerous leading analyst firms as the overwhelming leader in the space, having five times the utilized compute capacity of the other cloud providers combined. For more detailed analyst coverage on AWS, visit <http://aws.amazon.com/resources/analyst-reports/>

In our estimation, the AWS cloud infrastructure has been architected to be one of the most flexible and secure cloud computing environments available today. It provides an extremely scalable, highly reliable platform that enables customers to deploy applications and data quickly and securely.

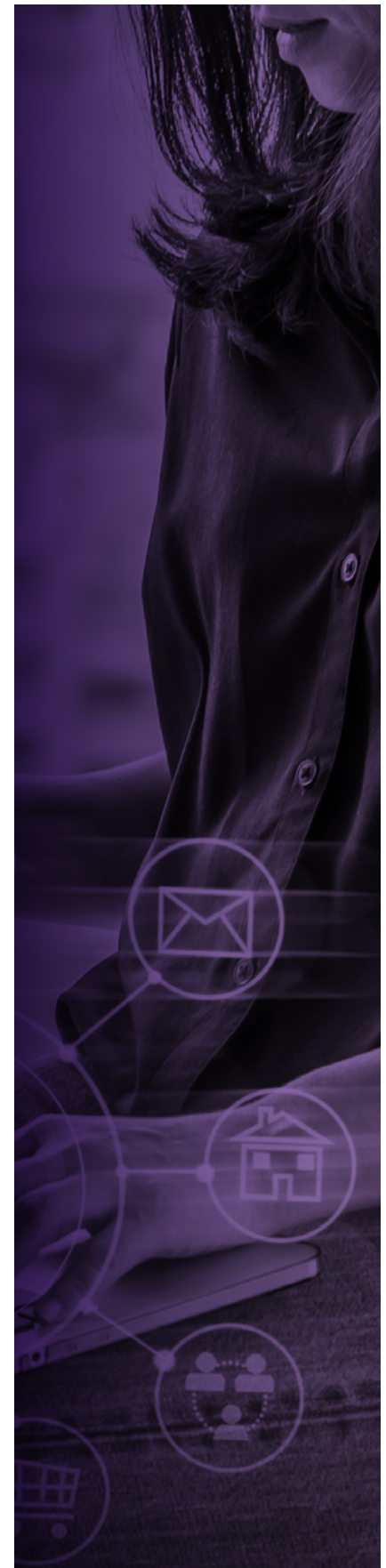
For more information on AWS's security and compliance story, visit:
<http://aws.amazon.com/security/>

How Exstream Messagepoint Works

Exstream Messagepoint is comprised of a cloud component where users manage all messaging content and rules and collaborate with each other to approve content for use in production. The second component is a run-time executable component (Decisioning Engine) that resides on-premise (either within the customer's site or within a services providers' environment where a customer may already have a production relationship). Exstream Messagepoint and the Messagepoint Decisioning Engine (DE) communicate with each other ensuring approved content and rules are ready for customer production execution.

There is no private client information in Exstream Messagepoint. Only production-ready or approved content can ever be delivered to the on-premise Decisioning Engine for processing. This helps ensure that users cannot inadvertently affect the integrity of production content or processes.

Once content and rules are ready for production, a job "Bundle" can be generated. The bundle is a set of binary files containing all approved messaging content, as well as a set of rule instructions used to evaluate each recipient for content qualification. Once a job Bundle is generated and securely transferred to the customer's production environment (internally or at a service provider) where the customer data and composition also resides, it is ready for further processing. Once a job Bundle is available for processing, no further action is required with Exstream Messagepoint, unless content or rule changes are required by the business. In this case the approval process will ensure that the changes are vetted prior to replacing the existing production-ready job Bundle.



The process of promoting a new Bundle is entirely in the hands of your operations team at this point and can be generated in three ways:

1. Using an on-demand request through the Exstream Messagepoint interface;
2. Scheduling a request through the Exstream Messagepoint interface; or
3. Making an API request from Exstream Messagepoint Web Services.

Once a Bundle is generated, it can be used indefinitely for production until business users make and approve additional content changes required for production. Messagepoint's messaging workflow ensures that production content cannot be inadvertently overwritten, without the appropriate review and approvals.

Architecture

Exstream Messagepoint environment

The Exstream Messagepoint cloud is comprised of the Java-based content management application, the content database (Oracle), as well as a set of on-demand testing facilities that support preview, proofing, and bulk testing. Messagepoint is designed to be channel agnostic, with existing connectors to a variety of outputs, including print, email, SMS, web and more.

From a print composition perspective, all necessary versions of the composition technologies used in your production facility are available to ensure that your test output lines up with what your users expect through a full production cycle.

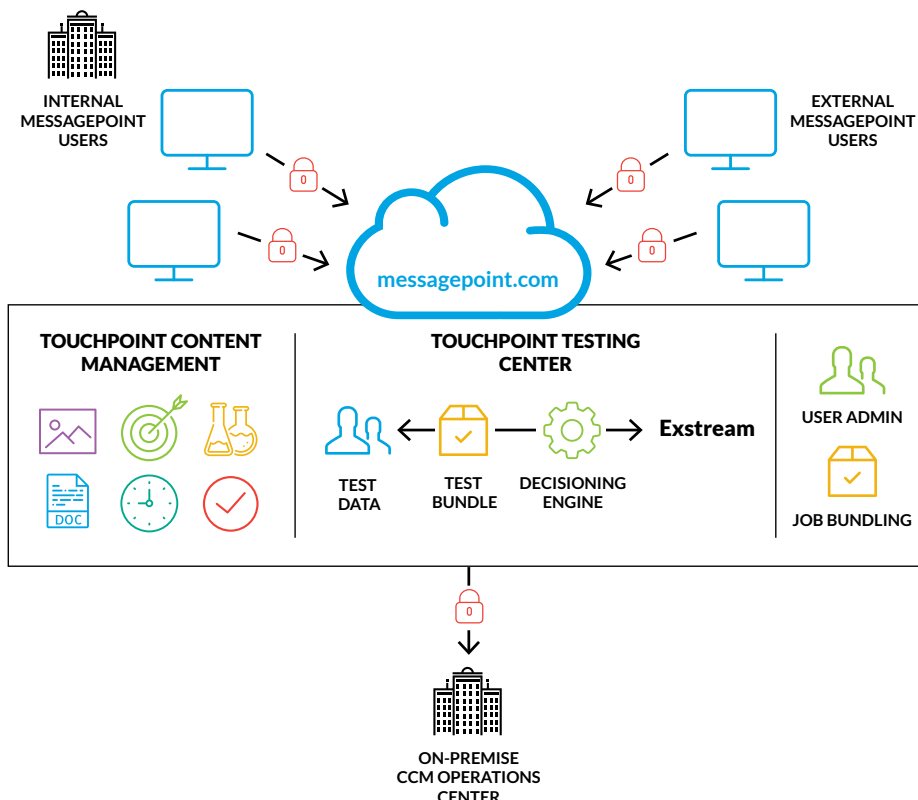


FIGURE 1

Messagepoint.com is comprised of a set of integrated tools for managing content – such as image and text content, variation management, targeting and testing, and approvals – for any cross-channel touchpoints from printed documents to emails, landing pages, and embeddable web content objects. In addition, a Test Center lets users conduct multiple levels of testing for each of these channels to ensure content and rule integrity prior to approvals and production. User permissions and visibility are managed through the administrative interface. Finally, production-ready content bundles are generated in Messagepoint.com and transferred to the customer's firewalled environment through a number of secure mechanisms.

Decision Engine (on-premise) environment

The Decisioning Engine (DE) component of the solution (operating in your secure network) is a run-time executable that is typically under 10MB in size. Supported platforms for the Messagepoint DE include Microsoft® Windows®, Linux®, Oracle® Solaris®, AIX®, and z/OS®. As a high-performance, lightweight executable, a good rule of thumb benchmark is that the Decisioning Engine process should add no more than 10 percent CPU time above the composition run-time.

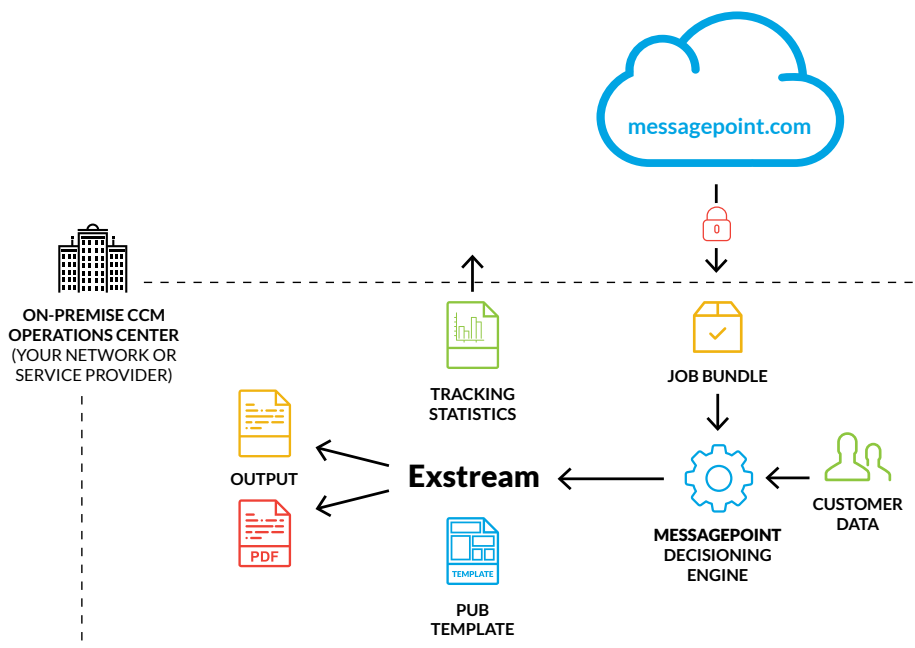


FIGURE 2

Customer data is applied to the Job Bundles by the DE. It produces information that Exstream uses to produce fully personalized communications for each recipient. The DE informs Exstream about which messages and offers the recipient qualifies for; which content and images to use; and all of the variable data for each recipient touchpoint. Exstream then generates and delivers the communications with content based on priority and space available. Exstream also produces reporting around the touchpoint deliveries so you know which recipients received which messages.

The DE is invoked as part of a scripted or orchestrated process whereby the DE “decides,” based on the customer data feeds and the Messagepoint Job Bundle, what content each recipient is entitled to receive. Once this process is complete, the next step is to compose final output using the results. The three files generated by the DE include the qualification file providing instructions for each recipient indicating what content they are entitled to receive; the message content file containing the messaging content and image resources to use; and the variables file containing all resolved variables, are then passed as part of the process to OpenText Exstream, which will then use the instruction set and content provided by the DE to now “fill in the blanks” for each recipient touchpoint through the composition process.

Once completed, a touchpoint delivery report is generated on-premise, based not only on what was processed and decided by the DE, but also on what was actually delivered by OpenText Exstream (following its set of rules for whitespace management), based on priority and space available. This report then acts as a historical record for what recipients actually received what messaging content and can be stored in Exstream Messagepoint or ingested into a separate data store on the customer network. As an option, any privacy-related data can automatically be excluded from the report prior to being returned to Exstream Messagepoint, if data should be returned.

Security

At no point in time is it necessary to store or process customer data in the Exstream Messagepoint cloud. Client data stays secure inside the customer trusted firewall and resides on the systems you prefer, thanks to the hybrid nature of Messagepoint, which allows for the DE to sit where data and delivery systems reside.

In addition to the physical security of client data, content in the Exstream Messagepoint is also stored and accessed securely in the cloud. There are two primary connection points into Exstream Messagepoint – user access through Messagepoint's browser-based user interface and Web Services API access – both are password-protected and secured through SSL.

Password policies are managed through the application by the system administrator. Exstream Messagepoint offers the same comprehensive degree of password controls as most enterprise applications, including:

- Configuring password complexity: min/max lengths, user of uppercase/lowercase characters, numerals, special symbols, and rejecting consecutively repeating characters.
- Tracking and restricting access based on a configurable number of failed login attempts
- Limiting the keep-alive time for a password reset request
- Setting password expiry to match corporate policy for other applications
- Restricting password re-use by history or by time

Users are also able to self-recover lost passwords, including a process which returns an email containing a password reset link to a validated email address. In the event that customers prefer to manage users through an established directory service, such as Microsoft® Active Directory®, this option is also available for both user provisioning and single sign-on (SSO).

Finally, as part of the ongoing development of Exstream Messagepoint, OpenText™ Exstream follows best practices for writing secure web applications. These include taking appropriate measures to prevent common web application vulnerability exploits, such as Cross-site Scripting (XSS) and Cross-site Forgery (XSF) attacks. Additionally, secure scans are performed as part of the release process to ensure application revisions do not go live with critical vulnerabilities.

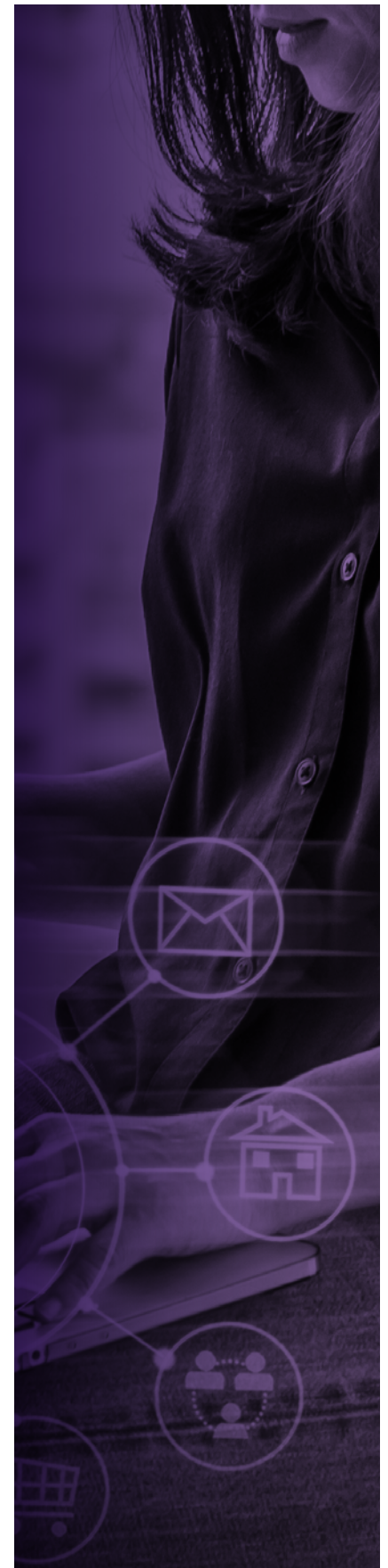
Scalability

Exstream Messagepoint – both the application and the cloud infrastructure – has been designed for high volume enterprise scale.

First, in terms of content scale, the Exstream Messagepoint user interface has evolved a number of mechanisms for addressing large volumes of messaging content, including the touchpoint variation models, shared content libraries, and other mechanism which promote re-use.

Second, even with the aforementioned scale mechanisms, Exstream focuses on ensuring user interface responsiveness through the user interface design and numerous database optimizations to ensure that the user interface remains highly responsive, even under large messaging volumes. As a general rule, regardless of size of touchpoint and volume of content, user interface response should not exceed five seconds, with the average response times being below three seconds.

Third, Exstream Messagepoint, as an infrastructure shared across many clients, must itself be responsive and scalable to a growing customer and user base, as well as to ebbs and flows of usage throughout the workday. To that end, Exstream Messagepoint has built-in levers for vertical scalability through real-time increases in computing horsepower to existing systems, as well as the ability to add additional virtual resources with load-balancing and clustering to achieve horizontal scale.



Backup and Restore

Individual client instances of Exstream Messagepoint are automatically backed up on a daily schedule and, should a point-in-time restore be required, instances can be restored to within five minutes of a failure or to a customer-specified period of time in the past, in the case of the need to roll back changes to a prior preferred state.

Disaster Recovery

OpenText maintains a mirrored location for Exstream Messagepoint in a separate data-center in a separate geography from the primary hosting environment. The production Exstream Messagepoint database is synced in real-time to this external site. In the event of a disaster to the primary site, the entire Exstream Messagepoint can be re-initialized within minutes, and users re-directed in real-time to the recovered environment.

Conclusion

Exstream Messagepoint is a hybrid cloud solution that permits your private client data to reside where it does today, securely in your trusted environment, while providing an intuitive, high-scale interface for business users to own and manage messaging content throughout its lifecycle. The primary focus for OpenText is to ensure that Exstream Messagepoint lives up to its promises of security, large enterprise scale, and intuitive user experience, while extending your enterprise messaging capabilities across the channels you require for your business.



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