

**EMERGING  
TECHNOLOGY  
WHITEPAPER**

## **BeeMail - Outbound Email Boundary Services**

**Enabling Large File Attachments and On-Demand Message Security for All Email Users**

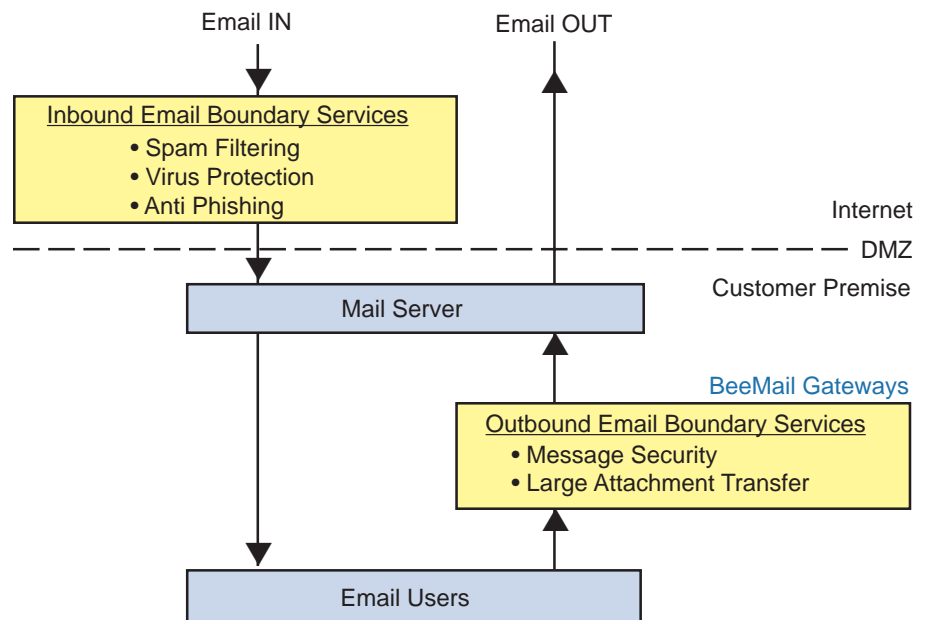
## Introduction to BeeMail, Outbound Email Boundary Services

The challenges facing Email messaging are numerous, including spam, viruses, confidentiality, large file attachments, Sarbanes Oxley compliance and overcapacity. A host of vendors have prepared solutions and services to these problems on the “*boundaries*” of the core Email system. The term *Email boundary* implies that the service is **transparently outside** of the user Email application, which is essential, since most Email users are neither willing nor able to change or modify their Email application environment.

*BeeMail Outbound Email Boundary Services offer security for outbound email messages as well as enabling the secure, transfer of very large attachments.*

Email boundary services are categorized as either *inbound*, in that they process inbound Email or *outbound* in that they process outbound Email. This document will discuss the *BeeMail Outbound Email Boundary Services* which offer security for outbound Email messages as well as enabling the secure, fast and reliable transfer of very large file attachments. All BeeMail boundary services are *universal*, in that they work with any Email application and *transparent*, in that they do not require any installation of software by the user, preserving the user's current Email environment.

Figure 1 - Email Boundary Services



While the market has been very aggressive in developing inbound Email boundary services to protect users from SPAM, Viruses and Phishing, it has not been as quick to develop Outbound services, in part because some of these solutions require implementation of new protocols and enabling middleware. Beehive Software has developed the underlying components to bring three key Outbound solutions to market:

*The BeeMail Secure, Email Attachment Gateway allows users to attach files of ANY size using their existing email application.*

*The BeeMail Secure, Message Gateway allows users to send secure email messages, On-Demand, using any email client.*

*All BeeMail Gateways provide total transparency, with no client installation.*

1) BeeMail Secure, Email Attachment Gateway - This SMTP/File Transfer gateway allows users to **attach files of ANY size** using their existing Email application. The BeeMail Email Attachment Gateway securely and reliably transfers large files using the https protocol.

2) BeeMail Secure, Message Gateway - This SMTP/HTTPS message gateway allows users to send Email from any Email client and have it converted to Https/SSL secure message delivery. This service can be selected “**On demand**” by the sender and used only when needed.

3) BeeMail Transaction Auditing Services - All Beehive secure outbound transactions are logged and searchable by the administrator. BeeMail enables **complete secure transaction auditing** for Sarbanes Oxley compliance. Additionally Senders and Receivers have mailbox style access to secure messages and files.

### **BeeMail Benefits**

The Benefits of implementing BeeMail Outbound Email Boundary Services are compelling since the problems they solve are familiar to virtually all Email Administrators.

#### *BeeMail Secure Email Attachment Gateway :*

- enables file attachments previously too large for Email delivery;
- improves Email server performance and reduces the number of required Email servers;
- enables reduction in costs of air courier services for sending large files.

#### *BeeMail Secure Message Gateway :*

- provides on-demand security of confidential Email and file transfers, for HIPAA/DOD/Legal/Banking/Advertising and other sensitive-content markets.

#### *All BeeMail Gateways:*

- provide total transparency, with no client install;
- provide an Audit trail for Sarbanes Oxley and other reporting requirements;
- allow recipient control over when downloads are executed.
- provide Sender Outboxes for history and message expiration/deletion;
- provide password protected sender and receiver notifications for secure, authenticated delivery;
- may be implemented as either customer premise gateways or as external boundary services.

## 1 The BeeMail Secure, Email Attachment Gateway

For Secure, Large File Attachment Delivery

*The BeeMail Secure, Email Attachment Gateway is the first product to provide the industrial strength, secure software infrastructure required for email to function in the capacity of a secure, large file, courier system.*

*There are four compelling business reasons for a company to implement the BeeMail Secure, Email Attachment Gateway.*

*American corporations spend 4 billion dollars a year shipping data via Air-Courier.*

There has always been a desire to use Email for sending files. Email is easy to use and it is nearly universal. Unfortunately, in the past, Email was not suitable for this purpose because it could not handle the transfer of large files efficiently or reliably.

*The BeeMail Secure, Email Attachment Gateway changes everything. BeeMail enables large file transfers for ANY Email system. BeeMail speeds the transfer with “On-the-Fly” streaming compression, BeeMail secures the transmission with the Https-SSL secure protocol and BeeMail accommodates the largest networks with a “Scalable” appliance architecture.*

The *BeeMail Secure, Email Attachment Gateway* is a server-side, preprocessing, Email gateway. The *BeeMail Secure, Email Attachment Gateway* is the first product to provide the industrial strength, secure software infrastructure required for Email to function in the capacity of a secure, large file, courier system. The *BeeMail Secure, Email Attachment Gateway* runs completely unseen, has no client-side interface, and doesn't require the end-user to install client software.

The *BeeMail Secure, Email Attachment Gateway* is best suited for large Email work-groups where one or more of the following conditions is met:

- 1) Large File Transfers are required, with “Large File” being defined as, at least 50MB in size;
- 2) many Medium-sized File Transfers are slowing down the mail server, with “Medium-sized File” being described as 2-50 MB in size;
- 3) the Files being transferred are of a secure nature;
- 4) the company wants an audit trail of the files being sent by Email.

There are four compelling business reasons for a company to implement the *BeeMail Secure, Email Attachment Gateway*:

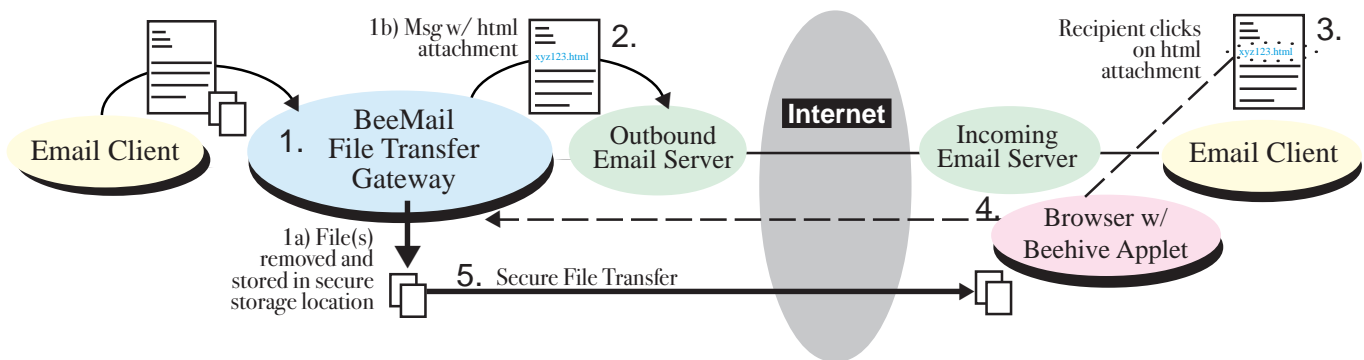
- 1) The *BeeMail Secure, Email Attachment Gateway* significantly reduces Air-Courier costs. American Companies spend 4 billion dollars a year in Air Courier fees transferring data on digital media in envelopes and bags (KPMG 2003), up from less than 1 billion in 1997 (Andersen 1997).
- 2) The *BeeMail Secure, Email Attachment Gateway* reduces file traffic and performance overload on Email servers (companies can slow down the ex-

*Much of the impact on email server performance can be attributed to file attachments and NOT SPAM as previously thought.*

pansion of Email server licenses). In their Email Archiving Market Research Estimates for 2004-2008, the Radicati Group, Inc. stated that the average corporate Email user processes about 10 MB of data per day after filtering, rising to at least 16 MB per user, per day by 2008. For a company with 1,000 users, that is an average of 10 Gigabytes per day, 50 GB per week, or 200 GB per month. Much of the performance impact on Email servers is attributed to file attachments and NOT SPAM as otherwise thought. A study at Pepsico confirms these findings. *According to both Radicati and EDS, Email system performance is being affected by the increased number and size of attachments.*

- 3) The *BeeMail Secure, Email Attachment Gateway* quickens and simplifies workflows involving files. Instead of forcing users to setup ftp accounts or external browser-based services, BeeMail allows them to use the Email package they are already comfortable with.
- 4) The *BeeMail Secure, Email Attachment Gateway* provides better file transfer security than other file transfer methods including FTP, Browser-based solutions and even Air-Courier. BeeMail provides an audit-able secure solution.

Figure 2 - BeeMail Email Attachment Gateway



**By the Numbers - What does the BeeMail File Transfer Gateway Do?**

- 1) All Email users on a network with the BeeMail gateway installed, can attach LARGE files to their Email.
  - a) The BeeMail Gateway separates the attachments from the Email body and sends them to the Secure Storage location applying streaming file compression "On-the-Fly".
  - b) The BeeMail gateway appends a small html file to the message. This html file contains a link to the BeeMail Application which will allow the recipient to access the attachments.
- 2) The message body, with the tiny html attachment, is handled by the standard outbound Email server.
- 3) When the Email is received by the recipients, they click on the attachment for download (as they normally would with any attachment). When the recipient clicks on the html attachment, his browser is launched with the BeeMail Java Applet loaded along with instructions for downloading the files.
- 4) The users select which files they want to download from the browser download window.
- 5) The files are securely downloaded to the user from Secure Storage and are decompressed "On-the-Fly".

## BeeMail Secure, Email Attachment Gateway Features List:

Feature	Function
<ul style="list-style-type: none"><li>• Parsing proxy architecture</li><li>• Streaming file compression</li><li>• Latency reduction</li><li>• Html retrieval stub attachment</li><li>• Customizable notifications</li><li>• File Size Threshold Value</li><li>• Recipient URL Notification with Secure Browser Pickup Page</li><li>• Out-of-Band Password Distribution</li></ul>	<p>Enables complete application transparency for sender</p> <p>Enables file transfer speed and storage efficiency</p> <p>Enables long haul multinational transmissions</p> <p>Enables application transparency for recipient</p> <p>Enables customer help messages and application flexibility</p> <p>Enables performance vs. efficiency balancing</p> <p>Enables recipient control of file retrieval</p> <p>Enables Secure, Sender administrated, password protection</p>

## 2 The BeeMail Secure, Message Gateway

For On-Demand, secure, message delivery

*The BeeMail Secure, Message Gateway is the first email security product that allows the user to turn the "Secure Message Delivery" feature on and off for each email.*

*The BeeMail Secure, Message Gateway is the first Email security product that allows the user to turn the "Secure Message Delivery" feature on or off for each Email. It may only be a few Emails that the Sender wants to secure in "https browser retrieval" mode since "pickup" involves an extra step for the recipient. To designate a message for "Secure Delivery" the user merely enters the word "Secure" as the first word in the Subject. The gateway sets up an account and URL for the recipient and sends a pickup notification.*

*BeeMail supports Secure, "Out-of-Band" password distribution*

To be a truly secure system, passwords cannot be distributed by insecure Email; the BeeMail secure message gateway supports "Out-of-Band" password notification. The BeeMail "Out-of-Band" password distribution procedure meets FIPS security requirements. If the message is determined to be "SECURE" and a sender enters a recipient Email address that BeeMail has not captured as a previous account, then BeeMail automatically sets up a receiver account for the Email address, assigns a password and sends a special "distribute passwords" Email notification to the Sender. The Sender clicks on the URL in the message which opens his browser, enters his password and is given access to the list of his recipients that he needs to call and provide system assigned passwords. BeeMail optionally includes the Sender's phone number in the recipient's notification Email so the recipient can call the sender to pick up the password.

The *BeeMail Secure, Message Gateway* is best suited for large, Email work-groups where one or more of the following conditions is met:

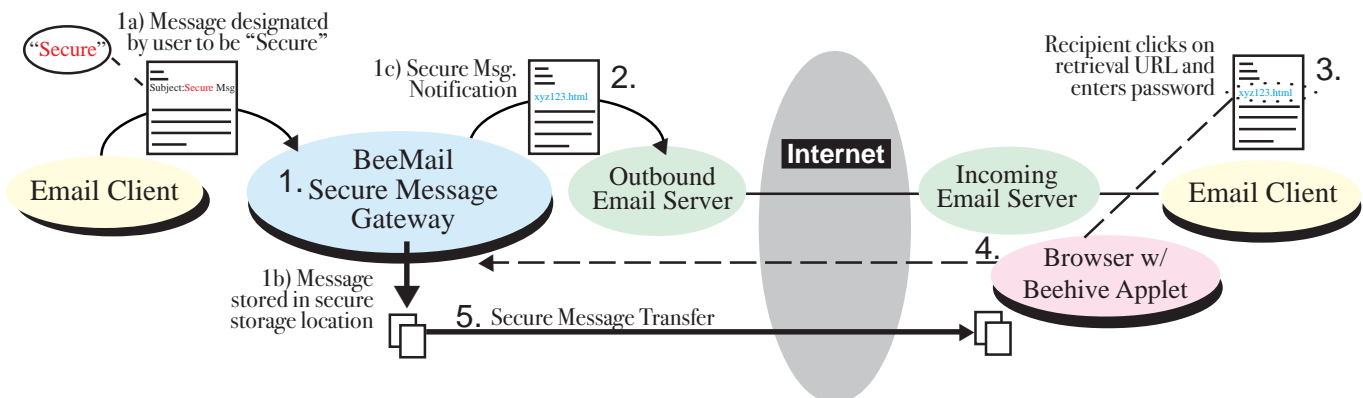
- 1) message security is required in an on-demand fashion;
- 2) security requirements are determined and administrated by the individual users;
- 3) there is a variety of different Email clients in use or the Email clients are not secure;
- 4) the company needs an audit trail of secure messaging.

*There are three compelling business reasons for a company to implement the BeeMail Secure, Email Attachment Gateway:*

There are three compelling business reasons for a company to implement the *BeeMail Secure, Message Gateway*:

- 1) protection of confidential messages,
- 2) compliance with HIPAA, DOD, Sarbanes Oxley and other security or auditing requirements,
- 3) security implementation without disturbing the operating environment of existing users.

Figure 3 - BeeMail Secure Message Gateway



### By the Numbers - What does the BeeMail Secure Message Gateway Do?

- 1a) Any email user on a network with the BeeMail gateway installed, may choose to send a Secure Message "On-Demand" - merely by inserting the word "Secure" as the first word in the Subject line of the message.
- b) The BeeMail Gateway sends the message to the Secure https Storage location.
- c) The BeeMail gateway sends a "Secure Message" notification email to the recipient. This notification contains a link to the BeeMail Application which will allow the recipient to securely access the message.
- 2) The Secure message notification is handled by the standard outbound email server.
- 3) When the email is received by the recipients, they click on the retrieval URL and their browser is launched with the BeeMail Java Applet loaded.
- 4) The user is prompted for their password which has been provided "out-of-band".
- 5) Once the user is authenticated, they are provided secure https access to the message. If there are files attached, the user may also select which files they want to download from the browser download window.

## BeeMail Secure, Email Message Gateway Features List:

Feature	Function
<ul style="list-style-type: none"><li>• Parsing proxy architecture</li><li>• Customizable notifications &amp; Customizable Pickup page</li><li>• Out-of-Band Password Distribution</li><li>• Detail Audit Logging</li></ul>	<p>Enables complete application Transparency for Sender;</p> <p>Enables recipient help messages and application flexibility;</p> <p>Enables Secure, Sender administrated, password protection;</p> <p>Enables all secure messages to be tracked/logged by sender, recipient, date and size.</p>

### 3 BeeMail Gateway Administration

System Administration, User Administration and Transaction Auditing

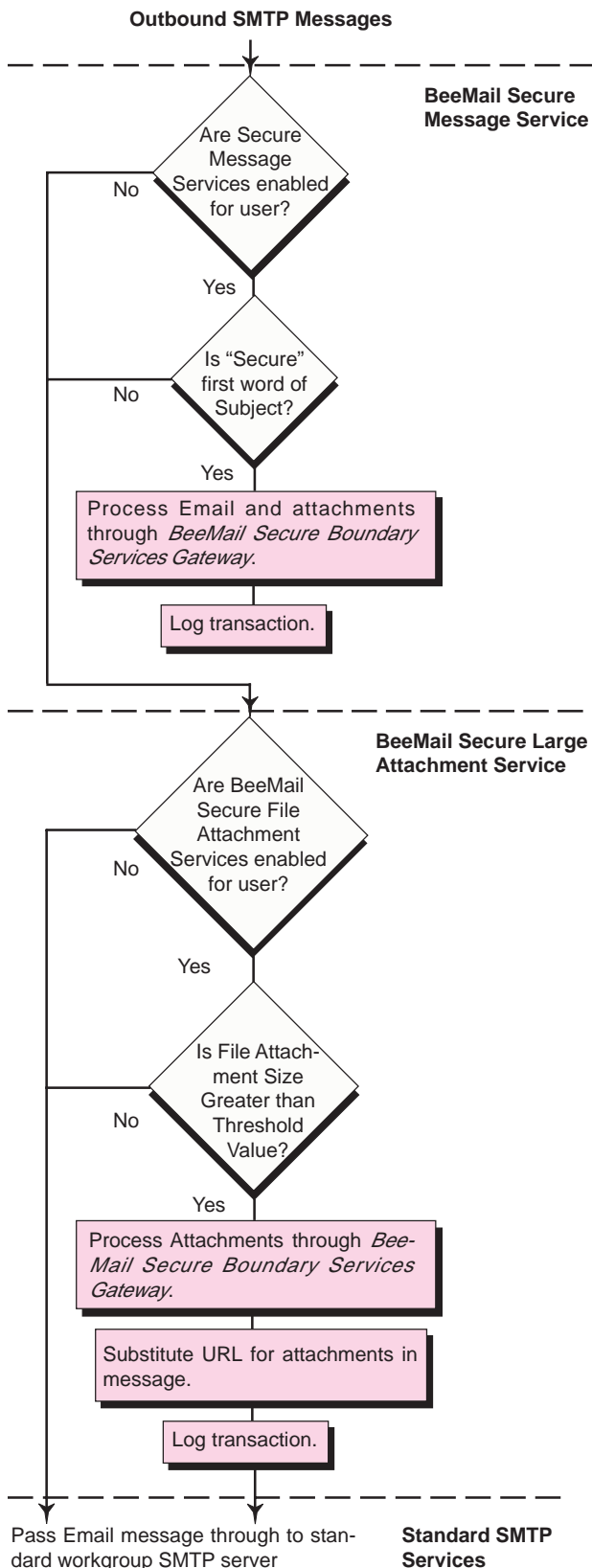
Implementing secure boundary services requires administrative control of those services as well as transaction logging of the use of the services. All BeeMail outbound services can be enabled and disabled for any user and the administrator can set user limits on parameters such as file size, secure storage space, and total files and secure messages transferred.

*BeeMail empowers users to handle many of their own administrative tasks such as “out-of-band” password distribution, freeing the system administrator of this burden.*

One of the greatest strengths of BeeMail services is that the Sender can control many of his own administrative tasks, freeing the system administrator of this burden. The user can determine what messages need to be “Secure” and he can be responsible for the “out-of-band” distribution of passwords, a task which would completely overwhelm a central administrator.

The BeeMail Gateway keeps track of a user's secure outbound transactions in a browser-based mailbox format. When the gateway processes a "First Message" for any given Sender, it will create an account for the Sender based on the sender's Email address and it will send an Email notification with an account URL to the sender. He may then call the administrator for his account password. The Sender may use the Account URL to login at any time to the browser-displayed outbox and the user may: 1) view the status of whether or not the job has been accesses by the recipient and 2) force the deletion of the job. The user may also set the default message expiration as well as change the message expiration for any job. Additionally the Sender may activate "Sender notification" functionality, i.e. the system will send an Email notification to the sender when the job has been accessed. Another attractive feature is the "send again" feature which allows the "notification for pickup" to be resent to the intended recipient.

Figure 4 - Administrators can modify operations by modifying BeeMail policies. The Diagram Below outlines the default BeeMail Outbound Policies.



Each Sender has the following options in his mailbox:

- default expiration period (up to admin set limits);
- default Sender "Job Accessed" Notification On/Off;
- mailbox style job list, with subject, recipient date and attributes for every job

The BeeMail Outbound Services gateway permits the administrator to modify the default BeeMail outbound boundary services policies by editing simple check-boxes and value-boxes in the admin window.

The BeeMail gateways log all secure transactions. The administrator may select Detail Logging, in which case, all secure jobs are tracked/logged by sender, recipient, date and size or Summary Logging, where the system accumulates the number of secure messages and total size by sender and recipient. The admin may search a list of Sender Email addresses or Recipient addresses and the system will retrieve detail or summary information for the selected user. There are also system summaries available.

### Summary: Why are BeeMail Gateways Special?

Beehive Software differentiates its BeeMail Gateways by placing attention and focus on Outbound Email Services. These services nest nicely with the broad range of excellent inbound products available from a variety of vendors. The BeeMail products adhere to a total transparency philosophy so as not to impact the Email user's operating environment.

The BeeMail products introduce a new secure protocol and middleware architecture to Email to increase its speed and reliability for handling large files and secure messaging. The BeeMail scalable architecture allows BeeMail to be implemented either as a Customer Premise Gateway or as an external Email Boundary Service.

## BeeMail Gateway Administration Features:

Feature	Function
<ul style="list-style-type: none"><li>• Enable/Disable by user</li></ul>	Enables administrative control of usage while an optional Auto-registration of users permits general access to users
<ul style="list-style-type: none"><li>• System Controls</li></ul>	Enables administrative control of file size, secure storage space, and total files, secure messages transferred and message expiration.
<ul style="list-style-type: none"><li>• Sender Outboxing</li></ul>	Enables mailbox style job list, with subject, recipient date and attributes. Attributes for every job include "Job Accessed", "Send Recipient Notification Again", "Delete".
<ul style="list-style-type: none"><li>• Detail Audit Logging</li></ul>	Enables all secure messages to be tracked/logged by sender, recipient, date and size.
<ul style="list-style-type: none"><li>• User Search</li></ul>	Enables admin searching of the Sender or Recipient addresses.

## About Beehive Software

*Beehive has over 100,000 end users and 800 corporate customers including Pepsico, Hasbro, Cendant/RCI, Hilton Hotels, Gannett Newspapers, and Zurich North America.*

Beehive Software has specialized in developing Secure file transfer, workflow and Email boundary services since 1997. Beehive has developed the *Beehive Secure File Transfer System*, and the *BeeMail Outbound Email Boundary Services Gateway*. Beehive supplies secure file transfer and Email boundary solutions for Banking, Insurance, Printing, Prepress, Newspaper, Engineering Reprographics, Photo-Finishing, Medical Transcription and Medical Imaging. Beehive has over 100,000 end users and 1000 corporate customers including Pepsico, Hasbro, Cendant/RCI, Hilton Hotels, Gannett Newspapers, Bank of Chicago, UNC Medical School, BYU, Johns Hopkins, RR Donnelley and Zurich North America.

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