

**BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001**

Complaint on Electronic Postmark®

Docket No. C2004-2

**REBUTTAL TESTIMONY OF

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ON BEHALF OF THE
UNITED STATES POSTAL SERVICE**

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Autobiographical Sketch

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My name is Thomas J. Foti. I have not previously provided testimony before the Postal Rate Commission.

I began working for the Postal Service as a summer intern in 1988 at the Headquarters' building in Washington DC. I became a permanent Postal employee in 1990 and have served in numerous staff positions in Operations Support, Engineering and Marketing. In 2000, I was promoted to the executive ranks as Manager of Equipment Requirements and Economic Analysis in the USPS Engineering organization. I presently serve as the Manager of Integration and Planning in Product Development. I have had this post since 2002. In 2005, I assumed the responsibility for the functional group which manages the USPS Electronic Postmark (EPM).

I have a Bachelor of Science degree in Management Science from the State University of New York at Geneseo and Master of Business Administration degree from the University of Maryland.

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2 **2. History**

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4 The concept of an electronic postmark was first presented to the United States
5 Postal Service in 1991 in a report commissioned by the Postal Service and
6 prepared by a consulting firm. A survey was conducted of the needs of the
7 Postal Service and its customers, and potential technological product offerings
8 that the Postal Service should explore. In this report, the consultant used the
9 name 'electronic postmark' and clearly described the function of an electronic
10 postmark as a secure time and date applied to electronic messages and
11 documents. The report also discussed potential applications of the product.

12

13 In 1993, the Postal Service created a new internal group called Technology
14 Applications. This group was tasked with developing technology-based
15 applications, products, or services-oriented capabilities that would enable the
16 Postal Service to better serve its customers. An electronic postmark service was
17 one of these initiatives.

18

19 During 1995, Technology Applications commissioned focus group research on
20 the project. Among the topics the focus group moderator was directed to discuss
21 with participants was the notion of electronically time and date stamping
22 electronic documents and messages. The results of the focus groups indicated
23 that the participants were receptive to the concept of applying a secure neutral-

1 party time and date stamp to an electronic message, but only if the time and date
2 stamping were conducted by an organization that had the trust and respect of
3 individuals, as well as, business and government. When the focus group
4 moderator asked participants to name likely candidates to operate such a
5 service, several well-known firms, such as IBM, AT&T and others, were
6 mentioned. When the moderator then added several other potential providers,
7 including the United States Postal Service, the participants' choices quickly
8 narrowed to the Postal Service as one of the preferred choices.

9

10 During 1994 and 1995, postal officials gave public speeches announcing that the
11 Postal Service would be building an electronic postmark for use by our
12 customers. In February, 1996, the Postal Service began work on developing an
13 EPM. The development work was done by a previously approved Postal Service
14 Information Technology vendor, CygnaCom Solutions of McLean, Virginia.

15 They developed a server-based electronic postmarking system that:

- 16 1. successfully applied a secure time and date system to any electronic
17 document directed to the EPM server. This time and date utilized the
18 'correct time' distributed via satellites emanating from National Institute of
19 Standards and Technology's atomic clocks in Boulder, Colorado.
- 20 2. successfully created a one way hash code of the time and date stamped
21 document (the document now included the original content as well as the
22 time and date stamp itself).

1 3. successfully archived this hash on a secure server so that it could be
2 validated at a later time, using software that customers/users would install
3 on their personal computers.

4 4. successfully created system logs and documentation of the system for
5 Postal Service review and acceptance.

6

7 In May of 1996, this first iteration of an Electronic Postmark System was
8 demonstrated -- live and in real time -- in Palo Alto, California at Aegis Star, an
9 electronic archiving company. In June 1996, the system was further successfully
10 demonstrated in New York City at the offices of Foote, Cohn, Belding.

11

12 Simultaneous with this system's development, another project underway was the
13 development of a very large PKI-based Certificate Authority (CA) system. By the
14 fall of 1996, the selected CA contractor, Cylink, Inc of Sunnyvale, California,
15 began working with CygnaCom to build EPM capability into the CA system. The
16 objective was that every Certificate issuance, deletion, revocation, expiration,
17 and other important 'events' related to certificates would be 'postmarked'. This
18 was an example of inserting one piece of technology into a larger one for the
19 benefit of both systems, and hence adding value for all customer applications.

20 The EPM was successfully integrated with the Certificate Authority System at the
21 time the earliest version of the CA was completed in mid-1997.

22

1 During this time period, the Electronic Postmark® was publicly announced, and
2 described, in numerous speeches by postal officials, and one or more press
3 releases were issued describing the capability of the Electronic Postmark®
4 system. The Postal Service's Board of Governors was also briefed on the
5 progress of the system. Additionally, several members of Congress were also
6 briefed, as was The Electronic Frontier Foundation and similar groups. Media
7 attention was also focused in national publications. Numerous IT technical
8 newspapers (such as Computer World) and newsmagazines also mentioned the
9 service.

10

11 The Electronic Postmark® system was also demonstrated at trade shows,
12 notably Internet World in San Jose (Feb 97), in Chicago (July 97) and in Boston
13 (Sept 97). The combined attendance at these three shows was well over
14 100,000. The Electronic Postmark® was also demonstrated at multiple Postal
15 Forum trade shows throughout 1997, 1998, and 1999. The Postal Service also
16 showed at additional 'eCommerce' trade shows during this period, averaging
17 about six exhibits per year for four or five years. The Electronic Postmark® was
18 a centerpiece of every single one of these trade shows, spotlighting the Postal
19 Service offerings to the public.

20

21 The following illustrates the broad exposure for Electronic Postmark® during this
22 time frame:

- 1 1. During these trade shows, the Postal Service collected several hundred
2 names of individuals representing hundreds of companies and
3 organizations that expressed interest in using the EPM; and,
- 4 2. As a result of the publicity in the technical press, the Postal Service
5 received dozens of calls from IT developers who wanted to know how they
6 could 'build the next EPM system' or 'embed EPM into their applications'.
- 7 3. As a result of the publicity campaign, the Postal Service met with
8 Microsoft, IBM (and Lotus), Digital, Hewlett-Packard, Verisign, eTrade,
9 Entrust, over a dozen top law firms, the EDI community, and a host of
10 government agencies, all of whom wanted to know more about the EPM
11 and how they might work with the Postal Service.

12

13 **3. Industry Development**

14 From 1994 through 1997, the Technical Applications group met with several
15 companies that offered time and date stamping services. During that time
16 period, there probably were no more than a half dozen small companies actively
17 participating in this sector. To say that an 'industry' existed would be incorrect;
18 an industry had not yet developed.

19

20 Now, in 2006, the Postal Service can identify over two dozen active participants
21 in this sector. In nearly a decade, then, during which time the Postal Service has
22 been actively engaged in trying to build an electronic postmarking (time and date
23 stamping) service, the number of participants has quadrupled . The Postal

1 Service involvement has, if anything, being a positive force to develop these
2 services.

3

4 Far more important to the 'growth' of the industry and the increase in the number
5 of participants has been the development of technology standards. When the
6 Postal Service's contractor first developed our electronic postmark system, there
7 were no industry standards to which to build. With the submission of proposed
8 technical standards and methodology for time and date stamping to the Internet
9 Engineering Task Force (IETF) in August, 2001, the industry for the first time
10 could begin to converge around a set of evolving standards.

11

12 This initial set of proposed methods, incorporated as RFC (Request for
13 Comment) 3161, was updated and then agreed to by the IETF. A fairly precise
14 and robust set of technical standards now exists, so that companies wanting to
15 engage in providing time and date stamping services to others now have
16 guidelines to help them create the system to do so. Thus, it is relatively
17 straightforward for a technical team to develop a time and date stamping service
18 in compliance with RFC 3161.

19

20 Two more sets of standards are also in process, and these are both instructive
21 because where RFC 3161 is entirely technical in nature, these two evolving
22 standards sets are being developed to address industry-specific needs.

23

1 First, the X.9 time stamping standards that the financial services community is
2 trying to finalize will, for the first time, engage not only an entire industry
3 (financial), but will also embrace all electronic financial transactions. This means
4 that the CFO's offices within the manufacturing industry, the Bursar and
5 Treasurer's offices within the education community, the reports due periodically
6 to the SEC, etc., will have to be time and date stamped in accordance with the
7 proposed X.9 standards. This standard is being promulgated by the Information
8 Assurance community, which works closely with the financial community. With
9 the recent re-emergence of the importance of accurate financial reporting data on
10 the part of both publicly-held and privately-held firms, adoption of this standard
11 may lead to its widespread acceptance by the relevant oversight agencies.

12

13 Secondly, the Universal Postal Union (Bern, Switzerland), has recently adopted a
14 set of time and date stamping standards under the rubric of 'digital postmarking.'
15 The world's postal administrations hope that this standard will be readily adopted
16 and accepted by this community of users. The Postal Service has been active in
17 helping to create these postmarking standards, providing comments, guidance
18 and feedback.

19

20 Thus, over the past decade there has been an increase in the number of service
21 providers in the time and date stamping industry. There has been a convergence
22 towards 'standards' and there is a growing understanding on the part of business

1 and government that more security is needed if people are going to move more
2 of their activities into an electronic arena.

3

4 **4. Current Status Of Electronic Postmarking By The Postal Service**

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6 In 2001, the Postal Service decided to provide an EPM service under a strategic
7 arrangement with one or more private sector companies, on the premise that a
8 private technology provider would create products and services faster than the
9 Postal Service, and would be able to provide more efficient technical and
10 customer support. In October 2001, the Postal Service published a Request for
11 Information (RFI) in the Commerce Business Daily concerning the USPS
12 Electronic Postmark®. The Postal Service evaluated the responses and
13 eventually selected Authentidate, Inc., to provide the USPS EPM service.

14

15 A five-year Strategic Alliance Agreement between the Postal Service and
16 Authentidate was signed in July 2002. This agreement lays out the
17 responsibilities of both organizations, the inter-relationships between the two
18 entities, as well as higher level strategic direction regarding the Electronic
19 Postmark®. The Postal Service provides governance and oversight to manage
20 the service, and Authentidate responsibilities include maintaining all aspects of
21 the operational environment such as providing technology, marketing, and
22 support services.

23

1 Creation and use of the worldwide web changed everything with respect to
2 communicating and storing information. The earliest USPS EPM systems
3 enabled 'more secure' electronic communications between senders and
4 receivers. It now appears that embedding the Electronic Postmark® into a
5 specific software solution—where a business need already exists—is a more
6 promising application environment. In this concept, the need is already there,
7 and an Electronic Postmark® can either be embedded in such a way that the
8 user does not have to make a choice to use the EPM, or can be embedded so
9 that the user invokes an Electronic Postmark® at a certain point in a transaction,
10 if needed. Most early adopters are using the Electronic Postmark® as proof of
11 content or integrity of content, regardless of whether the content is sent to
12 anyone else. In fact, 97 percent of all Electronic Postmark® uses, since 2003,
13 have been in conjunction with protecting content integrity of an electronic file —
14 and not in the transmission of a message.

15

16 The current largest customer of the USPS EPM is using it for content integrity in
17 a compliance process, and not as part of an electronic communications process.
18 This company has integrated the USPS Electronic Postmark® into an existing
19 business process that is used to verify electronic content of faxes received; which
20 then initiates additional business compliance activities. In this case, the USPS
21 Electronic Postmark® provides proof not of time and date sent, but of content
22 integrity and of a time and date that triggers a business process for the recipient.
23

1 A second customer applies a USPS EPM to forms that document Worker
2 Compensation claims. These Worker Compensation forms are not being sent
3 electronically. The customer is simply documenting the content of the claim form
4 as it was constructed at a certain date and time.

5

6 Another example of customers using the USPS EPM for purposes other than for
7 communication comes from doctors who are USPS Electronic Postmark®
8 customers. These doctors transcribe their daily handwritten patient notes into an
9 electronic record. They then obtain an Electronic Postmark® to append to the
10 record (their notes). And they keep this record. They don't forward it to anyone.
11 This record is for their own protection, should subsequent actions arise.

12

13 A fourth example of a customer who does not use the USPS EPM for any type of
14 communication needs is a division of a company which has a robust IP invention
15 and patent process. Their patent attorneys are documenting the inventor's
16 notes, research results, depictions, flow charts, schematics, descriptions, etc.
17 and applying an Electronic Postmark®. They are not submitting this material to
18 anyone. They are simply documenting the continuing development of new ideas,
19 so that if a challenge is levied against one of their patents, they can retrieve a
20 document to which a USPS Electronic Postmark® had been applied and show it
21 to the court (or similar interested party.) They feel that by applying a USPS
22 Electronic Postmark®, they maintain the ability to prove to others that exact
23 content existed at a specific time and date.

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2 The USPS Electronic Postmark® provides two very significant elements that add
3 to a business process. The USPS Electronic Postmark® time and date can be
4 considered irrefutable. It doesn't matter whether a document or file is ever
5 transmitted anywhere, the originator (or other interested party) can say with an
6 extremely high certainty that, at a certain point in time, a specific electronic file
7 did exist. It also provides for content integrity. Not only did the document/file
8 exist, its content at that point in time was X. One of the features customers want
9 when it comes to validating content integrity is the ability to validate the content
10 5, 10, or even 50 years from now. The Postal Service is structured to meet those
11 long term needs.

12

13 The Postal Service is committed to creating and operating affordable,
14 dependable, reliable products and services, of which the USPS Electronic
15 Postmark® over the past four years has been one. Customers perceive value
16 similarly. Customers require that their supplier be available, affordable,
17 dependable, reliable and—in this case—have longevity. The USPS Electronic
18 Postmark® fulfills this value proposition on all counts. The online world needs an
19 independent, third party provider of time and date services, along with message
20 (or content) integrity. The Postal Service has the experience and understanding
21 to provide this in a reasonable manner to all who need such a service.

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23

1 **5. Technical Description of the USPS EPM**

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3 First Time EPM Customer

4 An Electronic Postmark® (EPM) account must be established, and the user must
5 deposit funds, before requesting that an electronic document be protected by the
6 USPS EPM service. A new user can set up an account online at
7 www.uspsepm.com using a credit card and can begin requesting Electronic
8 Postmark® transactions right away, using a client application which is EPM
9 enabled.

10

11 How to Enable a Client Application

12 A Software Developers ToolKit (SDK) is available free of charge by request at
13 www.uspsepm.com which will allow a client application to add the ability for users
14 to request an Electronic Postmark®. An example of such application includes
15 the Microsoft Word Plug-in application.

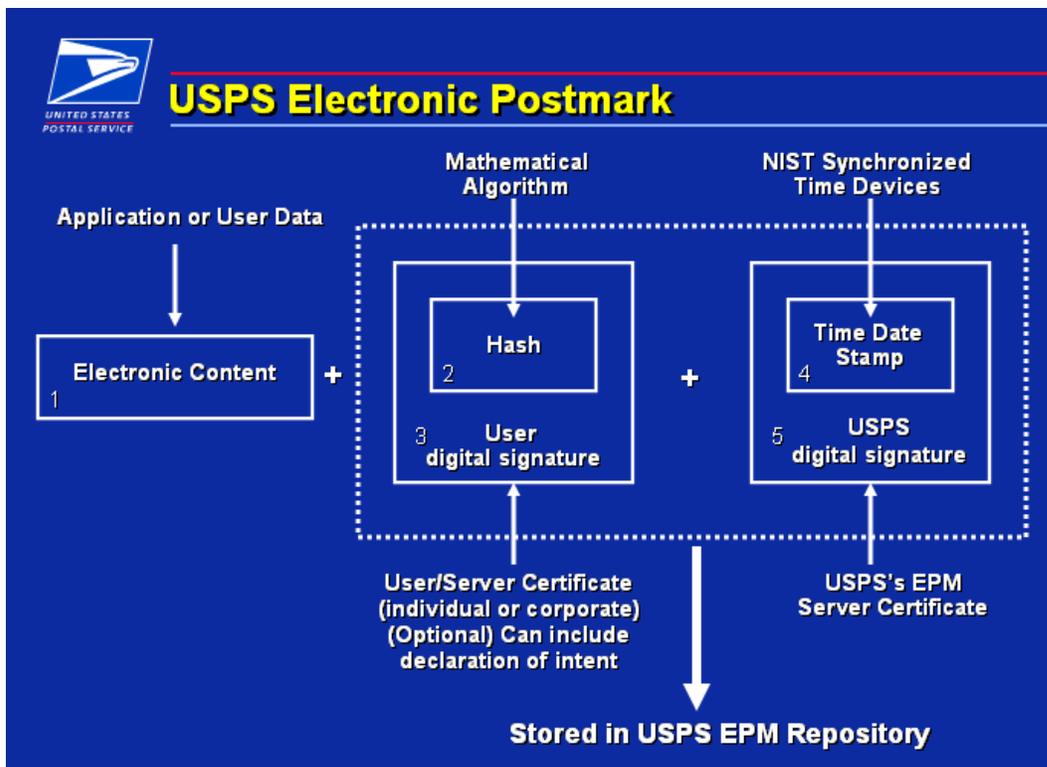
16

17 USPS EPM Process

18

19 Existing customers with a positive balance in their EPM account may request that
20 an electronic document be postmarked using the EPM service. The following
21 steps and diagram illustrates how the USPS process works:

22



1

2

1. Electronic content is created from any application.

3

2. The electronic content is submitted for an Electronic Postmark® through

4

the USPS EPM SDK (via a client application). The USPS SDK then

5

creates a hash code of the electronic content (a unique fingerprint of the

6

file, but does not include the file itself).

7

3. The hash code is signed by the user/server digital certificate.

8

4. A signed code is sent by the USPS EPM SDK to the USPS EPM Data

9

Center for time stamping. Once the Data Center receives the signed

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hash, the user/server's digital certificate is checked for validity. Next, a

11

trusted time stamp is obtained from the USPS EPM Time Stamp Server

12

(which is synchronized to the National Institute for Standards and

13

Technology – NIST). The time synchronization events are logged by the

1 time stamping hardware and can be used to prove that the time stamp
2 issued for each Electronic Postmark® is accurate.

3 5. The resulting time stamp is then signed by the USPS digital certificate to
4 produce an Electronic Postmark®, which is stored in the USPS repository
5 along with the user's signature of the file's hash to provide verifiable
6 evidence of content for seven years. The actual content of a file is never
7 stored by the USPS EPM repository.

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