

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA  
RICHMOND DIVISION

THE TRUSTEES OF COLUMBIA  
UNIVERSITY IN THE CITY OF NEW  
YORK,

*Plaintiff*

vs.

SYMANTEC CORPORATION,

*Defendant.*

Civil Action No. 3:13-cv-00808-JRS

**JURY TRIAL DEMANDED**

**FIRST AMENDED COMPLAINT**

Plaintiff The Trustees of Columbia University in the City of New York (“Columbia”) files this First Amended Complaint against Defendant Symantec Corporation (“Symantec”) for patent infringement, correction of inventorship, and other claims for relief, and alleges as follows:

**INTRODUCTION**

1. Columbia brings this action to remedy Symantec’s violations of Columbia’s intellectual property rights in important computer security innovations. Protecting data exchanged in email and over networks from viruses and other malicious intrusions into our computers presents ever-increasing challenges. The creativity and hard work of Columbia professors and researchers has resulted in next generation techniques for detecting intrusions even for attacks that have never been seen before. Symantec is infringing several Columbia patents on computer security and intrusion detection, including United States Patent Nos. 7,487,544; 7,979,907; 7,448,084; 7,913,306; 8,074,115; and 8,601,322, as set forth in more detail in this First Amended Complaint. When Columbia alerted Symantec to Columbia’s patent rights and invited a licensing negotiation, Symantec ignored Columbia. Columbia brings this

action to redress Symantec's infringement of Columbia's patents and the innovations of its researchers.

2. Columbia also brings this action to remedy Symantec's conversion of Columbia's intellectual property embodied in confidential disclosures that Columbia made to Symantec when the parties collaborated in connection with proposals to United States government agencies regarding Columbia's research on using "decoys" in detecting and preventing malicious computer attacks. Columbia expected and understood that Symantec would respect the confidential working relationship between the parties and Columbia's right to seek patent protection for Columbia's own inventions—and would not use what Columbia disclosed to Symantec in confidence for Symantec's own benefit and for purposes other than submitting joint grant proposals to federal agencies. This did not prove to be the case. After Columbia disclosed technical information in confidence to Symantec on decoy technology, provided drafts of grant proposals, and even told Symantec that Columbia had filed patent applications on the technology, Symantec proceeded to file its own patent applications on Columbia's technology without listing the Columbia researchers as inventors. Symantec not only concealed this fact from Columbia, but misled Columbia into believing that Symantec would not file its own patent applications on Columbia's technology. To prevent Columbia from discovering the truth, Symantec requested that the United States Patent and Trademark Office ("PTO") not publish the application as would ordinarily occur.

3. Symantec's misconduct only came to light when the PTO issued United States Patent No. 8,549,643 (the "'643 patent'"), which lists a Symantec employee as the sole inventor and shows Symantec as the sole assignee of all rights in the patent. Columbia now seeks to correct inventorship on the '643 patent to list the true inventors and secure Columbia's rights in the patent, along with other appropriate relief for Symantec's wrongful conduct.

#### **PARTIES**

4. Columbia is a non-profit educational corporation formed by special act of the Legislature of the State of New York located at 535 West 116th Street, New York, New York,

10027. The research that is the subject of this lawsuit has its source in Columbia's School of Engineering and Applied Sciences, which consists of more than 170 faculty, more than 3,500 students, and is dedicated to training future leaders in the field of engineering and working to solve some of our nation's most important security challenges.

5. Columbia is informed and believes, and on that basis alleges, that Defendant Symantec is a corporation organized and existing under the laws of the State of Delaware, with facilities throughout the United States and the world. Symantec makes, uses and sells computer security, storage and systems management solutions, including consumer and enterprise software products and services that are designed and intended to secure and manage the information of Symantec customers. In so doing, Symantec conducts business throughout the United States and in this judicial district. Symantec's world headquarters is located at 35 Ellis Street, Mountain View, California 94043. Symantec has security research and response centers, development facilities, and technical support and customer services centers worldwide. Symantec currently has a Security Operations Center and offices located in Herndon, Virginia (formerly located in Alexandria, Virginia). Columbia is informed and believes, and on that basis alleges, that Symantec's Security Operations Center in this judicial district is integrally involved in the infringing activity that is the subject of this First Amended Complaint. Symantec's registered agent for service of process is Corporation Service Company, Bank of America Center, 16th Floor, 1111 East Main Street, Richmond, Virginia 23219.

#### **JURISDICTION AND VENUE**

6. This is an action for patent infringement under the Patent Laws of the United States, 35 U.S.C. §§ 1 *et seq.*, correction of inventorship under 35 U.S.C. § 256, and related claims for fraudulent concealment, unjust enrichment, and conversion. This Court has subject matter jurisdiction over the claims of patent infringement and for correction of inventorship alleged herein under 28 U.S.C. § 1331 and §§ 1338(a). The Court has supplemental jurisdiction under 28 U.S.C. § 1367 for all other claims alleged herein because they are so related to the claims over which the Court has original jurisdiction, including at least the claim for correction

of inventorship, that they form part of the same case or controversy under Article III of the United States Constitution.

7. The Court also has subject matter jurisdiction over all claims alleged herein under 28 U.S.C. § 1332 due to the diversity of citizenship of the parties. Under 28 U.S.C. § 1332(c)(1), this is a dispute between citizens of different States in which the matter in controversy exceeds the sum or value of \$75,000, exclusive of interests and costs. Columbia was formed by special act of the Legislature of the State of New York and has its principal place of business in New York. As such, Columbia is a citizen of the State of New York. Columbia is informed and believes, and on that basis alleges, that Symantec is a citizen of the States of Delaware (where it is incorporated) and California (where it has its principal place of business).

8. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) and (c) and 28 U.S.C. § 1400(b) because, among other reasons, Symantec has offices and facilities in Herndon, Virginia and hence resides and is subject to personal jurisdiction in this judicial district. Further, a substantial part of the events or omissions giving rise to claims alleged herein occurred in this judicial district. Symantec has committed acts of infringement in this judicial district by, *inter alia*, selling and offering for sale infringing products in this judicial district and through the operation and maintenance of its Security Operations Center in Herndon, Virginia. The dealings between Symantec and Columbia giving rise to Columbia's claims to correct inventorship and for fraudulent concealment, unjust enrichment and conversion also occurred in this judicial district.

## **FACTUAL BACKGROUND**

### **A. Columbia's Intrusion Detection Systems Laboratory**

9. The Department of Computer Science at Columbia supports research in various areas, including a wide diversity of computer security-related topics. This case centers on patents and research of Columbia professors and researchers working in and with the Intrusion Detection Systems Laboratory ("IDS Lab"), one of the research groups within a research organization in network and systems security at Columbia known as the Systems Security Center.

10. The IDS Lab at Columbia builds next-generation tools to detect stealthy and malicious intruders in computer systems. The computer security work at the IDS Lab includes, for example and among other things, research into anomaly detection, collaborative intrusion detection, attacker modeling, malicious code, and secure wireless networks.

11. Salvatore Stolfo, a Columbia Professor of Computer Science, heads the IDS Lab. Professor Stolfo is a distinguished professor and scholar. He received his Ph.D. from New York University's Courant Institute in 1979 and has been a member of Columbia's faculty ever since. Professor Stolfo won an IBM Faculty Development Award early in his academic career in 1983, and has published several books and well over 250 scientific papers since then, several winning best paper awards, in the areas of parallel computing, artificial intelligence knowledge-based systems, data mining, and computer security and intrusion detection systems. His research has been supported by the United States Government's Defense Advanced Research Projects Agency ("DARPA"), National Science Foundation, the Office of Naval Research, and various other companies and public and private organizations and agencies. Professor Stolfo also has served as the Acting Chairman of Computer Science at Columbia and has served as the Director of the New York State Center for Advanced Technology of Columbia and the National Science Foundation sponsored Digital Government Research Center at Columbia.

12. Professor Angelos Keromytis is one of Professor Stolfo's collaborators on important areas of research that are the subject of this action. Since January 2006, Professor Keromytis has been an Associate Professor of Computer Science at Columbia. He also is the Director of Columbia's Network Security Lab, which is dedicated to performing advanced research in critical areas of network and systems security. Before assuming these positions, Professor Keromytis served as an Assistant Professor at Columbia from 2001 to 2005. Professor Keromytis currently resides in Annandale, Virginia and is a Program Director at the National Science Foundation in Arlington, Virginia in the Division of Computer and Network Systems, Directorate for Computer & Information Science & Engineering.

**B. Columbia's Patented Technology**

13. The technology at issue in this case concerns important advances in the field of computer security. The world is becoming more and more connected every day. Computer networks are continually becoming larger and more complex, and the amount of information exchanged through electronic communication and email is increasing dramatically. As a result, computer security technologies designed to prevent malicious viruses and other unwanted or harmful intrusions to computer systems and networks are extremely important.

14. One challenge in computer security is how to detect viruses and other attacks never previously seen by an intrusion detection system. These attacks often are referred to as "zero-day" attacks because they provide developers "zero days" to address and patch the vulnerability.

15. Professor Stolfo and his colleagues in Columbia's IDS Lab pioneered next generation intrusion detection technologies based on, among other things, data analysis and machine learning techniques that provide for vastly improved detection of new viruses and attacks never previously seen by an intrusion detection system. As but one example of their groundbreaking work, Professor Stolfo and his colleagues developed systems that, among other things, can be trained to analyze large amounts of data about various kinds of files and generate detection models that far more effectively distinguish normal computer operation from anomalous or malicious behaviors. As a result of these advancements, executable programs (such as those that may be in an email attachment) can be determined to be benign or malicious with a high degree of accuracy, even if the program has never been seen before. Professor Stolfo and his colleagues also developed systems whereby information about the detected intrusions can be rapidly and efficiently deployed and shared across communities of users.

16. The work of the IDS Lab has resulted in more than twenty United States patents assigned to Columbia and relating to new ways to combat computer and network security threats. This action involves claims of patent infringement of six of these United States patents.

17. United States Patent No. 7,487,544 (the “‘544 patent”), entitled “System and Methods For Detection of New Malicious Executables,” was duly and legally issued on February 3, 2009. The ‘544 patent generally relates to “detecting malicious executable programs, and more particularly to the use of data mining techniques to detect such malicious executables in email attachments.” ‘544 Patent, col. 1:33-37. The ‘544 patent contains claims directed to “classifying an executable attachment in an email received at an email processing application” and a “for classifying an executable program.” Columbia is the owner by assignment of the entire right, title and interest in and to the ‘544 patent and holds the right to sue and recover for past, present and future infringement. A true and correct copy of the ‘544 patent is attached as Exhibit A.

18. United States Patent No. 7,979,907 (the “‘907 patent”), entitled “Systems and Methods For Detection of New Malicious Executables,” was duly and legally issued on July 12, 2011. The ‘907 patent is a continuation of the application that resulted in the ‘544 patent and thus also generally relates to “detecting malicious executable programs, and more particularly to the use of data mining techniques to detect such malicious executables in email attachments.” ‘907 Patent, col. 1:38-41. The ‘907 patent contains claims directed to “classifying an executable attachment in an email received at a computer system.” Columbia is the owner by assignment of the entire right, title and interest in and to the ‘907 patent and holds the right to sue and recover for past, present and future infringement. A true and correct copy of the ‘907 patent is attached as Exhibit B.

19. United States Patent No. 7,448,084 (the “‘084 patent”), entitled “System and Methods For Detecting Intrusions In A Computer System By Monitoring Operating System Registry Access,” was duly and legally issued on November 4, 2008. The ‘084 patent generally relates to “detecting anomalies in a computer system, and more particularly to the use of probabilistic and statistical models to model the behavior of process which access the file system of the computer, such as the Windows™ registry.” ‘084 Patent, col. 1:43-47. The ‘084 patent contains claims directed to “detecting intrusions in the operation of a computer system.”

Columbia is the owner by assignment of the entire right, title and interest in and to the '084 patent and holds the right to sue and recover for past, present and future infringement. A true and correct copy of the '084 patent is attached as Exhibit C.

20. United States Patent No. 7,913,306 (the "'306 patent"), entitled "System and Methods For Detecting Intrusions In A Computer System By Monitoring Operating System Registry Access," was duly and legally issued on March 22, 2011. The '306 patent is a continuation of the application that resulted in the '084 patent and is also directed generally toward "methods for detecting intrusions in the operation of a computer system." The '306 patent contains claims directed to a "method for detecting intrusions in the operation of a computer system." Columbia is the owner by assignment of the entire right, title and interest in and to the '306 patent and holds the right to sue and recover for past, present and future infringement. A true and correct copy of the '306 patent is attached as Exhibit D.

21. United States Patent No. 8,074,115 (the "'115 patent"), entitled "Methods, Media And Systems For Detecting Anomalous Program Executions" was duly and legally issued on December 6, 2011. The '115 patent generally relates to "detecting anomalous program executions." '115 Patent, col. 1:16-19. Columbia is the owner by assignment of the entire right, title and interest in and to the '115 patent and holds the right to sue and recover for past, present and future infringement. A true and correct copy of the '115 patent is attached as Exhibit E.

22. United States Patent No. 8,601,322 (the "'322 patent"), entitled "Methods, Media And Systems For Detecting Anomalous Program Executions" was duly and legally issued on December 3, 2013. The '322 patent is a continuation of the application that resulted in the '115 patent and generally relates to "detecting anomalous program executions." '322 Patent, col. 1:19-20. Columbia is the owner by assignment of the entire right, title and interest in and to the '322 patent and holds the right to sue and recover for past, present and future infringement. A true and correct copy of the '322 patent is attached as Exhibit F.



23. The '544, '907, '084, '306, '115, and '322 patents are all publicly identified by title and patent number on the IDS Lab web page under the tab "Tech Transfer" at <http://ids.cs.columbia.edu/content/patents.html>.

**C. Symantec Had Knowledge Of Columbia's Patents Yet Ignored the Opportunity to License Them**

24. Symantec was well aware of Professor Stolfo's work in the IDS Lab and had actual knowledge of the '544, '907, '084, '306, '115, and '322 patents described above.

25. On August 14, 2012, Calvin Chu, Senior Technology Licensing Officer at Columbia Technology Ventures, the technology transfer arm of Columbia, sent letters to Symantec's Francis deSouza (President, Products and Services), Janice Chaffin (Group President, Consumer Business), and Anil Chakravarthy (Senior Vice President, Enterprise Security). The letters informed Symantec that Columbia "is the owner of many issued patents and pending patent applications ('patent documents') with a sampling identified in Exhibit A" and that "Columbia's technology provides and confers important competitive advantages including new features and capabilities." The letter specifically identified the '544, '907, '084, '306, and '115 patents by title and patent number and invited a licensing discussion with Columbia. In addition to identifying the patents, the letter was accompanied by a copy of the '544 patent (among other patents).

26. Symantec did not participate in any licensing discussions involving these patents. Indeed, Symantec did not even bother to respond to any of Columbia's letters.

27. Symantec also had actual knowledge of the '544, '907, '084, '306, and '115 patents as a result of Symantec's citation of each of the foregoing patents to the PTO as prior art to Symantec's own patent applications. Symantec has also cited to the PTO Columbia's United States Patent Application Publication 2003/0065926, which eventually matured into the '544 patent.

28. Symantec also had actual knowledge of the '322 patent. On December 6, 2013, Columbia wrote to Symantec to provide notice of the '322 patent and to inform Symantec that

the ‘322 patent is directly relevant to Symantec products identified in Columbia’s original Complaint in this action filed December 5, 2012, including without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services. Columbia further informed Symantec that Columbia intended to add the ‘322 patent to the current suit. Symantec never responded to this letter.

29. In addition to direct dealings between Columbia and Symantec regarding the subject of the research in the IDS Lab, Symantec researchers have published papers that cite to Professor Stolfo’s own published papers on (among other things) the application of machine learning techniques to intrusion detection. In particular and for example, Symantec researchers are co-authors on a paper entitled *Polonium: Tera-Scale Graph Mining and Inference for Malware Detection*, in *Proceedings of SIAM International Conference on Data Mining (SDM) 2011*. This paper acknowledges that Professor Stolfo and his colleagues “were among the first who used machine learning algorithms (Naive Bayes and Multi-Naive Bayes) to classify malware.” In support of this statement of recognition, the Polonium paper cites pages from an article co-authored by Professor Stolfo, Matthew Schultz, Eleazar Eskin, and Erez Zadok entitled *Data Mining Methods For Detection Of New Malicious Executables*, *IEEE Symposium on Security and Privacy*, IEEE COMPUTER SOCIETY, 2001. The cited Stolfo article forms the basis of a provisional application that Columbia submitted to the PTO on July 30, 2001, as Provisional Patent Application No. 60/380,622, one of two provisional applications to which the ‘544 patent claims priority.

**D. Symantec’s Misconduct During Its Collaboration With Columbia On “Decoy” Technology**

30. In addition to infringing on Columbia’s patents as set forth in this First Amended Complaint, Symantec also induced Columbia to collaborate on matters relating to Professor Stolfo and Keromytis’s research on decoy technology and then wrongfully sought and obtained for Symantec’s own benefit one or more patents on Columbia’s work. Professors Stolfo and

Keromytis had developed an innovative strategy for using decoys in detecting and thwarting viruses and other malicious intrusions by (among other things) baiting the attacks with false information. After Columbia disclosed its decoy technology to Symantec in confidence, Symantec adopted Columbia's work as its own by filing patent applications based on the materials Symantec received from Columbia and naming only Symantec's own employees as inventors. Symantec's patent filings eliminated any mention of the true innovators and inventors (*i.e.*, Professors Stolfo and Keromytis). Symantec then tried to cover its tracks, taking steps to withhold key information from both Columbia and the PTO in an effort to ensure that its wrongful conduct was hidden. Additional facts and details regarding Symantec's wrongful conduct are provided below.

**a. Columbia Discloses Its Decoy Technology To Symantec**

31. Beginning in or around 2004, Columbia and Symantec began to discuss potential collaboration between Symantec and Professor Stolfo's lab. To facilitate these and future discussions without granting reciprocal intellectual property licenses to their respective confidential information, Columbia and Symantec entered into a "Mutual Non-Disclosure Agreement" dated November 29, 2004 (the "2004 NDA"). The agreement specifically identifies as confidential information "all unpublished current and past research performed in Professor Sal Stolfo's computer sciences laboratories." The agreement further states that the parties shall use confidential information "only for the purpose for which it was disclosed" and not "use or exploit such information for their own benefit."

32. Professors Stolfo and Keromytis have assigned to Columbia all inventive works based on their research at Columbia on the development of decoy technology. Beginning in 2006, Columbia collaborated with Symantec on drafting a series of grant proposals for potential projects relating to Columbia's decoy technology. The parties understood that, in addition to whatever obligations flowed from the 2004 NDA, their collaboration constituted a confidential working relationship pursuant to which they would communicate to each other in confidence about the prospect of submitting mutually beneficial joint grant proposals to government

agencies. In order to submit grant proposals to government agencies in Alexandria, Virginia, Columbia disclosed in confidence to Symantec details of Professors Stolfo and Keromytis's work relating to the use of decoy technology in computer security.

33. As one example, in 2006, Columbia and Symantec worked on a joint grant proposal to the National Intelligence Community Enterprise Cyber Assurance Program ("NICECAP") regarding Professors Stolfo and Keromytis's work on the use of decoy technology in computer security. Columbia's contact at Symantec was Symantec's Director of Government Research, Brian Witten, who Columbia is informed and believes, and that basis alleges, worked at Symantec's Herndon, Virginia facility at the time. Professor Keromytis prepared the first drafts of the grant proposal and provided those drafts to Mr. Witten in confidence between May 12, 2006 and May 14, 2006. The drafts described some of Professors Stolfo and Keromytis's existing research regarding the use of a "decoy system" in computer security to, for example, detect and prevent the loss of sensitive data. With Columbia's consent, Symantec's Witten incorporated the material supplied by Professor Keromytis into a grant proposal submitted to NICECAP on May 25, 2006.

34. During the same time frame in 2006, Columbia sought to protect its intellectual property by filing patent applications on Professor Stolfo's and Keromytis's technology. On May 31, 2006, Columbia filed a provisional application number 60/809,898, and on May 31, 2007, Columbia also filed utility patent application number PCT/US07/12811 claiming priority to the provisional application. That utility application was published on December 13, 2007.

35. In 2010, Columbia and Symantec submitted a further joint grant proposal to DARPA in Arlington, Virginia on Professors Stolfo and Keromytis's decoy technology. The bases for this 2010 proposal were the prior 2006 proposal originally prepared by Professor Keromytis and disclosed in confidence to Symantec, as well as a September 2009 paper relating to Professor Stolfo and Keromytis's decoy technology entitled "Baiting Inside Attackers using Decoy Documents," which detailed the basics of Professors Stolfo and Keromytis's decoy technology to achieve, among other goals, data loss prevention. Darren Shou, a Senior Director

at Symantec's research labs, participated in the preparation of the 2010 grant proposal for Symantec. Professor Keromytis specifically directed Mr. Shou to Columbia's 2006 NICECAP proposal and the September 2009 paper.

**b. Symantec Adopts Columbia's Decoy Technology As Its Own**

36. Despite the fact that the decoy technology, and the idea to use this technology in a data loss prevention system, originated with Professors Stolfo and Keromytis, Symantec took steps to file its own patent applications on Columbia's technology—while concealing these activities from Columbia. For example, Columbia is informed and believes, and on that basis alleges, that between March 2, 2010, and March 18, 2010, Symantec prepared an internal invention disclosure form ("IDF") based upon the inventions, materials and technology, including information embodied in Columbia's drafts of the 2006 NICECAP proposal, that Professors Stolfo and Keromytis provided to Symantec in confidence. Symantec's IDF expressly reaffirmed the confidential nature of the working relationship between Symantec and Columbia in connection with the preparation and submission of joint grant proposals to government agencies.

37. On March 24, 2010, an in-house lawyer from Symantec, Delos Larson, contacted Professors Stolfo and Keromytis by email, describing himself as a "non-evil lawyer at Symantec." Mr. Larson provided excerpted pages from the Symantec IDF and proposed filing a Symantec patent application covering the use of the decoy technology with a data loss prevention system—an invention disclosed in the draft grant proposal that Professor Keromytis prepared and disclosed in confidence to Symantec four years earlier, in 2006. The IDF identified a purported conception date in March 2010 and listed only Symantec's Marc Dacier as an inventor.

38. Mr. Larson's email asked if Professors Stolfo and Keromytis thought they were inventors. Both Professors Stolfo and Keromytis immediately confirmed that they were inventors. Professor Stolfo also informed Symantec that Columbia had developed the idea of using decoy technology in a data loss prevention system (as described in the Symantec invention

disclosure form) long before the purported conception date of March 2010 in Symantec's IDF. In addition, at around the same time, Columbia's Calvin Chu informed Symantec that Columbia had already filed its own patent applications on decoy technology.

39. None of this information deterred Symantec from misappropriating Columbia's technology for itself. On Friday, April 2, 2010, Symantec filed its own provisional patent application directed at Professors Stolfo and Keromytis's decoy technology. The application identified Symantec's Daren Shou and Marc Dacier as the inventors and failed to name Professors Stolfo and Keromytis (or anyone else from Columbia) as inventors. Three days later, on Monday, April 5, 2010, Mr. Larson—the so-called “non-evil lawyer”—informed Columbia that Symantec “*is filing a provisional patent application this week based on the IDF*” (although the application *already had been filed the previous week*). Mr. Larson never provided Columbia with a copy of the as-filed provisional application and made no mention that Symantec had completely omitted Professors Stolfo and Keromytis as inventors, notwithstanding their express confirmation that they were inventors of the technology and that the ideas originated from their work. Provisional applications are not available to the public.

40. Symantec said nothing more to Columbia about this provisional patent application until almost one year later, as the statutory deadline approached to file a utility application. On March 31, 2011, an outside Symantec patent attorney, Benjamin Kimes, contacted Columbia personnel, including Professors Stolfo and Keromytis, regarding submitting a utility patent application based upon the provisional patent application. Mr. Kimes made no mention that the provisional application did not name Professors Stolfo and Keromytis as inventors, but instead only named as inventors Symantec's Mr. Shou and Mr. Dacier. Mr. Kimes attached a draft of the utility patent application which listed Mr. Shou, Mr. Dacier, Professor Stolfo, and Professor Keromytis as inventors (along with Kathleen McKeown, a Columbia faculty member who worked on natural language generation for the decoy technology). Mr. Kimes asked Professors Stolfo and Keromytis to review the draft patent application and confirm that they were inventors.

41. That same day, Professor Stolfo told Mr. Kimes: “I invented the concept long before discussing this with anyone at Symantec and filed for patent protection many months ago. I thought this was carefully explained to Darren [Shou] and others long ago. I believe Columbia explained this, too. It is a mistake to claim anyone else invented the concept.” Also on that same day, Columbia’s Calvin Chu reiterated to Mr. Kimes that Symantec should not file the application because Columbia was already actively pursuing patenting for this technology due to its strong commercial potential. Columbia informed Symantec that the parties should have a business discussion if Symantec wanted access to the technology.

42. Symantec’s Darren Shou attempted to placate Columbia. On April 1, 2011, he wrote: “I think what happened is that our outside counsel had it in their calendar to follow up on a conversation from last year’s provisional filing. I’ve let them know that they need to work it out and account for Sal’s filing.” In light of these and other communications, Columbia understood and believed that Symantec would not file a utility patent application that covered technology developed by Professors Stolfo and Keromytis and disclosed to Symantec in confidence.

43. Symantec did nothing to “work it out” or account for “Sal’s filing” of an earlier patent application directed to the decoy technology that Columbia disclosed to Symantec in confidence years earlier. Instead, on April 4, 2011, without informing Columbia, Symantec filed its own utility patent application directed at the decoy technology invented by Professors Stolfo and Keromytis. Symantec’s application, United States Patent Application No. 13/066,013, claimed priority to the Provisional Application No. 61/320,609. The utility application largely matched the draft application that Symantec provided to Columbia on March 31, 2011, with the notable exception that Symantec deleted all of the Columbia personnel from the list of inventors. Symantec’s patent application sought claims based directly on Professor Stolfo and Keromytis’s work, the same work Columbia disclosed to Symantec in confidence, including in connection with the grant proposals.

44. Columbia is informed and believes, and on that basis alleges, that Symantec exploited its confidential working relationship with Professors Stolfo and Keromytis not for the purpose of preparing grant proposals to federal agencies, but to gain early access to the groundbreaking work coming out of Columbia's computer security laboratories in order to advance Symantec's competitive position in the market. Columbia is informed and believes, and on that basis alleges, that Symantec's deceptive and improper patent application filings are confirmation of its wrongful motives.

**c. Symantec Hides Its Tracks In The PTO**

45. A utility patent application normally becomes public after eighteen months, when the application is published by the PTO. However, at the time of filing the utility application, Symantec requested that the patent application not publish at the normal eighteen months, but instead remain secret until patent issuance. Because the application remained secret, Columbia (and the public) was unaware of the utility application's filing or prosecution until the patent issued to Symantec on October 1, 2013, as the '643 patent, entitled "Using decoys by a data loss prevention system to protect against unscripted activity." The '643 patent lists Symantec's Darren Shou as the sole inventor. A copy of the '643 patent is attached as Exhibit G.

46. Now that the application that resulted in the '643 patent has become publicly available with the issuance of the patent, Columbia has learned that Symantec was not candid with the PTO—or with Columbia. For example, Symantec submitted a sworn declaration that Symantec's Darren Shou was the sole inventor even though the application was based on disclosures he received directly and in confidence from Columbia and from prior grant proposals with which he had absolutely no involvement. Moreover, despite having knowledge of Professors Stolfo and Keromytis's earlier inventive work and notice of prior-filed Columbia patent applications on the decoy technology, Symantec did not submit any of this material to the PTO.



**FIRST CLAIM FOR RELIEF**

**(Infringement of U.S. Patent No. 7,487,544)**

47. Columbia re-alleges and incorporates by reference paragraphs 1 through 29 of this First Amended Complaint as if fully set forth herein.

48. On February 3, 2009, the ‘544 patent, entitled “System And Methods For Detection Of New Malicious Executables,” was duly and legally issued by the PTO in full compliance with Title 35 of the United States Code. The ‘544 patent is valid and enforceable. A true and correct copy of the ‘544 patent is attached as Exhibit A.

49. Columbia is the owner of the entire right, title, and interest in and to the ‘544 patent, and has the right to bring this suit to recover damages for any current, past, or future infringement of the ‘544 patent.

50. The ‘544 patent includes 43 claims. By way of example, claim 1 of the ‘544 patent recites:

1. A method for classifying an executable attachment in an email received at an email processing application of a computer system comprising:

a) filtering said executable attachment from said email;

b) extracting a byte sequence feature from said executable attachment; and

c) classifying said executable attachment by comparing said byte sequence feature of said executable attachment with a classification rule set derived from byte sequence features of a set of executables having a predetermined class in a set of classes to determine the probability whether said executable attachment is malicious,

wherein extracting said byte sequence features from said executable attachment comprises creating a byte string representative of resources referenced by said executable attachment.

51. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and is currently infringing one or more claims of the ‘544 patent, in violation of 35

U.S.C. § 271, literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority from Columbia, Symantec antivirus and computer security software products and services that classify executable programs and attachments in an email within the scope of one or more claims of the ‘544 patent. The infringing antivirus and computer security software products and services that fall within the scope of one or more claims of the ‘544 patent, include without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, among others that may be identified during the course of these proceedings.

52. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the ‘544 patent under 35 U.S.C. § 271(b) by actively inducing infringement of one or more claims of the ‘544 patent, literally and/or under the doctrine of equivalents, by, among other things, offering for sale, selling, promoting, and advertising the Symantec antivirus and computer security software products and services, including without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, and by encouraging, teaching and instructing users, customers and potential customers to use those products and services in a manner that infringes one or more claims of the ‘544 patent.

53. Columbia is informed and believes, and on that basis alleges, that Symantec knowingly, intentionally, and actively aided and abetted the direct infringement (literally and/or under the doctrine of equivalents) of one or more claims of the ‘544 patent by providing manuals, guides and support and otherwise instructing, educating, and encouraging users, customers, and potential customers to scan emails, classify executable programs, and use the Symantec antivirus and computer security software products and services, including without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec

Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, in a manner that infringes the '544 patent. The statements and materials Symantec distributes to its customers regarding its products and services specifically instruct and endorse the use of methods and systems that directly infringe the '544 patent, literally and/or under the doctrine of equivalents.

54. Columbia is informed and believes, and on that basis alleges, that Symantec engaged in these acts with knowledge of the '544 patent and the specific intent to encourage its customers' and potential customers' direct infringement of one or more claims of the '544 patent.

55. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '544 patent under 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the '544 patent, literally and/or under the doctrine of equivalents, by offering for sale and selling the Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, to users, customers, and potential customers, with knowledge of the '544 patent and knowing that its products are especially made or especially adapted for infringing use. The Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, include one or more material parts of the claimed invention of the '544 patent, and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

56. Columbia is informed and believes, and on that basis alleges, that Symantec and certain of its officers and employees have been aware of the existence of the '544 patent and, despite such knowledge, Symantec has continued to willfully, wantonly, and deliberately engage

in acts of infringement of the '544 patent, justifying an award to Columbia of increased damages under 35 U.S.C. § 284, and attorneys' fees and costs incurred under 35 U.S.C. § 285.

57. Symantec's acts of infringement have caused damage to Columbia in an amount to be proven at trial. Columbia is entitled to recover damages adequate to compensate it for the infringement complained of herein, but in no event less than a reasonable royalty.

58. Columbia has suffered irreparable injury as a direct and proximate result of Symantec's conduct for which there is no adequate remedy at law and will continue to suffer such irreparable injury.

### **SECOND CLAIM FOR RELIEF**

#### **(Infringement of U.S. Patent No. 7,979,907)**

59. Columbia re-alleges and incorporates by reference paragraphs 1 through 29 of this First Amended Complaint as if fully set forth herein.

60. On July 12, 2011, the '907 patent, entitled "System And Methods For Detection Of New Malicious Executables," was duly and legally issued by the PTO in full compliance with Title 35 of the United States Code. The '907 patent is valid and enforceable. A true and correct copy of the '907 patent is attached as Exhibit B.

61. Columbia is the owner of the entire right, title, and interest in and to the '907 patent, and has the right to bring this suit to recover damages for any current, past, or future infringement of the '907 patent.

62. The '907 patent includes 20 claims. By way of example, claim 1 of the '907 patent recites:

1. A method for classifying an executable attachment in an email received at a computer system comprising:

- a) filtering said executable attachment from said email;
- b) extracting a byte sequence feature from said executable attachment; and
- c) classifying said executable attachment by comparing said byte sequence feature of said executable attachment with a classification rule set derived from

byte sequence features of a set of executables having a predetermined class in a set of classes,

wherein said classifying comprises determining using a computer processor, with a Multi-Naive Bayes algorithm, a probability that said executable attachment is a member of each class in said set of classes based on said byte sequence feature and dividing said step of determining said probability into a plurality of processing steps and executing said processing steps in parallel.

63. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and is currently infringing one or more claims of the '907 patent, in violation of 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority from Columbia, Symantec antivirus and computer security software products and services that classify executable programs and attachments in an email within the scope of one or more claims of the '907 patent. The infringing antivirus and computer security software products and services that fall within the scope of one or more claims of the '907 patent, include without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, among others that may be identified during the course of these proceedings.

64. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '907 patent under 35 U.S.C. § 271(b) by actively inducing infringement of one or more claims of the '907 patent, literally and/or under the doctrine of equivalents, by, among other things, offering for sale, selling, promoting, and advertising the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, and by encouraging, teaching and instructing users, customers and

potential customers to use those products and services in a manner that infringes one or more claims of the '907 patent.

65. Columbia is informed and believes, and on that basis alleges, that Symantec knowingly, intentionally, and actively aided and abetted the direct infringement (literally and/or under the doctrine of equivalents) of one or more claims of the '907 patent by providing manuals, guides and support and otherwise instructing, educating, and encouraging users, customers, and potential customers to scan emails, classify executable programs, and use the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, in a manner that infringes the '907 patent. The statements and materials Symantec distributes to its customers regarding its products and services specifically instruct and endorse the use of methods and systems that directly infringe the '907 patent, literally and/or under the doctrine of equivalents.

66. Columbia is informed and believes, and on that basis alleges, that Symantec engaged in these acts with knowledge of the '907 patent and the specific intent to encourage its customers' and potential customers' direct infringement of one or more claims of the '907 patent.

67. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '907 patent under 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the '907 patent, literally and/or under the doctrine of equivalents, by offering for sale and selling the Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, to users, customers, and potential customers, with knowledge of the '907 patent and knowing that its products are especially made or especially adapted for infringing use. The Symantec antivirus and computer security products

and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, include one or more material parts of the claimed invention of the '907 patent, and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

68. Columbia is informed and believes, and on that basis alleges, that Symantec and certain of its officers and employees have been aware of the existence of the '907 patent and, despite such knowledge, Symantec has continued to willfully, wantonly, and deliberately engage in acts of infringement of the '907 patent, justifying an award to Columbia of increased damages under 35 U.S.C. § 284, and attorneys' fees and costs incurred under 35 U.S.C. § 285.

69. Symantec's acts of infringement have caused damage to Columbia in an amount to be proven at trial. Columbia is entitled to recover damages adequate to compensate it for the infringement complained of herein, but in no event less than a reasonable royalty.

70. Columbia has suffered irreparable injury as a direct and proximate result of Symantec's conduct for which there is no adequate remedy at law.

### **THIRD CLAIM FOR RELIEF**

#### **(Infringement of U.S. Patent No. 7,448,084)**

71. Columbia re-alleges and incorporates by reference paragraphs 1 through 29 of this First Amended Complaint as if fully set forth herein.

72. On November 4, 2008, the '084 patent, entitled "System And Methods For Detecting Intrusions In A Computer System By Monitoring Operating System Registry Accesses," was duly and legally issued by the PTO in full compliance with Title 35 of the United States Code. The '084 patent is valid and enforceable. A true and correct copy of the '084 patent is attached as Exhibit C.

73. Columbia is the owner of the entire right, title, and interest in and to the '084 patent, and has the right to bring this suit to recover damages for any current, past, or future infringement of the '084 patent.

74. The '084 patent includes 28 claims. By way of example, claim 1 of the '084 patent recites:

1. A method for detecting intrusions in the operation of a computer system comprising:

(a) gathering features from records of normal processes that access the operating system registry;

(b) generating a probabilistic model of normal computer system usage based on the features and determining the likelihood of observing an event that was not observed during the gathering of features from the records of normal processes; and

(c) analyzing features from a record of a process that accesses the operating system registry to detect deviations from normal computer system usage to determine whether the access to the operating system registry is an anomaly.

75. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and is currently infringing one or more claims of the '084 patent, in violation of 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority from Columbia, Symantec antivirus and computer security software products and services that perform intrusion detection within the scope of one or more claims of the '084 patent. The infringing antivirus and computer security software products and services that fall within the scope of one or more claims of the '084 patent, include without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, among others that may be identified during the course of these proceedings.

76. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '084 patent under 35 U.S.C. § 271(b) by actively inducing



infringement of one or more claims of the '084 patent, literally and/or under the doctrine of equivalents, by, among other things, offering for sale, selling, promoting, and advertising the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, and by encouraging, teaching and instructing users, customers and potential customers to use those products and services in a manner that infringes one or more claims of the '084 patent.

77. Columbia is informed and believes, and on that basis alleges, that Symantec knowingly, intentionally, and actively aided and abetted the direct infringement (literally and/or under the doctrine of equivalents) of one or more claims of the '084 patent by providing manuals, guides and support and otherwise instructing, educating, and encouraging users, customers, and potential customers to use the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, in a manner that infringes the '084 patent. The statements and materials Symantec distributes to its customers regarding its products and services specifically instruct and endorse the use of methods and systems that directly infringe the '084 patent, literally and/or under the doctrine of equivalents.

78. Columbia is informed and believes, and on that basis alleges, that Symantec engaged in these acts with knowledge of the '084 patent and the specific intent to encourage its customers' and potential customers' direct infringement of one or more claims of the '084 patent.

79. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '084 patent under 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the '084 patent, literally and/or under the doctrine of equivalents, by offering for sale and selling the Symantec antivirus and computer security

products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, to users, customers, and potential customers, with knowledge of the '084 patent and knowing that its products are especially made or especially adapted for infringing use. The Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, include one or more material parts of the claimed invention of the '084 patent, and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

80. Columbia is informed and believes, and on that basis alleges, that Symantec and certain of its officers and employees have been aware of the existence of the '084 patent and, despite such knowledge, Symantec has continued to willfully, wantonly, and deliberately engage in acts of infringement of the '084 patent, justifying an award to Columbia of increased damages under 35 U.S.C. § 284, and attorneys' fees and costs incurred under 35 U.S.C. § 285.

81. Symantec's acts of infringement have caused damage to Columbia in an amount to be proven at trial. Columbia is entitled to recover damages adequate to compensate it for the infringement complained of herein, but in no event less than a reasonable royalty.

82. Columbia has suffered irreparable injury as a direct and proximate result of Symantec's conduct for which there is no adequate remedy at law.

#### **FOURTH CLAIM FOR RELIEF**

##### **(Infringement of U.S. Patent No. 7,913,306)**

83. Columbia re-alleges and incorporates by reference paragraphs 1 through 29 of this First Amended Complaint as if fully set forth herein.

84. On March 22, 2011, the '306 patent, entitled "System And Methods For Detecting Intrusions In A Computer System By Monitoring Operating System Registry Accesses," was duly and legally issued by the PTO in full compliance with Title 35 of the United States Code.

The '306 patent is valid and enforceable. A true and correct copy of the '306 patent is attached as Exhibit D.

85. Columbia is the owner of the entire right, title, and interest in and to the '306 patent, and has the right to bring this suit to recover damages for any current, past, or future infringement of the '306 patent.

86. The '306 patent includes 11 claims. By way of example, claim 1 of the '306 patent recites:

1. A method for detecting intrusions in the operation of a computer system comprising:

(a) gathering features from records of normal processes that access the file system of the computer;

(b) generating a probabilistic model of normal computer system usage based on occurrences of the features and determining the likelihood of observing an event that was not observed during the gathering of features from the records of normal processes; and

(c) analyzing features from a record of a process that accesses the file system to detect deviations from normal computer system usage to determine whether the access to the file system is an anomaly.

87. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and is currently infringing one or more claims of the '306 patent, in violation of 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority from Columbia, Symantec antivirus and computer security software products and services that perform intrusion detection within the scope of one or more claims of the '306 patent. The infringing antivirus and computer security software products and services that fall within the scope of one or more claims of the '306 patent, include without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security,

Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, among others that may be identified during the course of these proceedings.

88. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '306 patent under 35 U.S.C. § 271(b) by actively inducing infringement of one or more claims of the '306 patent, literally and/or under the doctrine of equivalents, by, among other things, offering for sale, selling, promoting, and advertising the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, and by encouraging, teaching and instructing users, customers and potential customers to use those products and services in a manner that infringes one or more claims of the '306 patent.

89. Columbia is informed and believes, and on that basis alleges, that Symantec knowingly, intentionally, and actively aided and abetted the direct infringement (literally and/or under the doctrine of equivalents) of one or more claims of the '306 patent by providing manuals, guides and support and otherwise instructing, educating, and encouraging users, customers, and potential customers to use the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, in a manner that infringes the '306 patent. The statements and materials Symantec distributes to its customers regarding its products and services specifically instruct and endorse the use of methods that directly infringe the '306 patent, literally and/or under the doctrine of equivalents.

90. Columbia is informed and believes, and on that basis alleges, that Symantec engaged in these acts with knowledge of the '306 patent and the specific intent to encourage its

customers' and potential customers' direct infringement of one or more claims of the '306 patent.

91. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '306 patent under 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the '306 patent, literally and/or under the doctrine of equivalents, by offering for sale and selling the Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, to users, customers, and potential customers, with knowledge of the '306 patent and knowing that its products are especially made or especially adapted for infringing use. The Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, include one or more material parts of the claimed invention of the '306 patent, and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

92. Columbia is informed and believes, and on that basis alleges, that Symantec and certain of its officers and employees have been aware of the existence of the '306 patent and, despite such knowledge, Symantec has continued to willfully, wantonly, and deliberately engage in acts of infringement of the '306 patent, justifying an award to Columbia of increased damages under 35 U.S.C. § 284, and attorneys' fees and costs incurred under 35 U.S.C. § 285.

93. Symantec's acts of infringement have caused damage to Columbia in an amount to be proven at trial. Columbia is entitled to recover damages adequate to compensate it for the infringement complained of herein, but in no event less than a reasonable royalty.

94. Columbia has suffered irreparable injury as a direct and proximate result of Symantec's conduct for which there is no adequate remedy at law.

**FIFTH CLAIM FOR RELIEF**

**(Infringement of U.S. Patent No. 8,074,115)**

95. Columbia re-alleges and incorporates by reference paragraphs 1 through 29 of this First Amended Complaint as if fully set forth herein.

96. On December 6, 2011, the ‘115 patent, entitled “Methods, Media And Systems For Detecting Anomalous Program Executions,” was duly and legally issued by the PTO in full compliance with Title 35 of the United States Code. The ‘115 patent is valid and enforceable. A true and correct copy of the ‘115 patent is attached as Exhibit E.

97. Columbia is the owner of the entire right, title, and interest in and to the ‘115 patent, and has the right to bring this suit to recover damages for any current, past, or future infringement of the ‘115 patent.

98. The ‘115 patent includes 42 claims. By way of example, claim 1 of the ‘115 patent recites:

1. A method for detecting anomalous program executions, comprising:
  - executing at least a part of a program in an emulator;
  - comparing a function call made in the emulator to a model of function calls for the at least a part of the program;
  - identifying the function call as anomalous based on the comparison; and
  - upon identifying the anomalous function call, notifying an application community that includes a plurality of computers of the anomalous function call.

99. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and is currently infringing one or more claims of the ‘115 patent, in violation of 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority from Columbia, Symantec antivirus and computer security software products and services that detect anomalous program executions within the scope of one or more claims of the ‘115 patent. The infringing antivirus and computer security

software products and services that fall within the scope of one or more claims of the ‘115 patent, include without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, among others that may be identified during the course of these proceedings.

100. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the ‘115 patent under 35 U.S.C. § 271(b) by actively inducing infringement of one or more claims of the ‘115 patent, literally and/or under the doctrine of equivalents, by, among other things, offering for sale, selling, promoting, and advertising the Symantec antivirus and computer security software products and services, including without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, and by encouraging, teaching and instructing users, customers and potential customers to use those products and services in a manner that infringes one or more claims of the ‘115 patent.

101. Columbia is informed and believes, and on that basis alleges, that Symantec knowingly, intentionally, and actively aided and abetted the direct infringement (literally and/or under the doctrine of equivalents) of one or more claims of the ‘115 patent by providing manuals, guides and support and otherwise instructing, educating, and encouraging users, customers, and potential customers to use the Symantec antivirus and computer security software products and services, including without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, in a manner that infringes the ‘115 patent. The statements and materials Symantec distributes to its customers regarding its products and services specifically instruct and endorse the use of methods and systems that directly infringe the ‘115 patent, literally and/or under the doctrine of equivalents.

102. Columbia is informed and believes, and on that basis alleges, that Symantec engaged in these acts with knowledge of the ‘115 patent and the specific intent to encourage its customers’ and potential customers’ direct infringement of one or more claims of the ‘115 patent.

103. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the ‘115 patent under 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the ‘115 patent, literally and/or under the doctrine of equivalents, by offering for sale and selling the Symantec antivirus and computer security products and services, including without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, to users, customers, and potential customers, with knowledge of the ‘115 patent and knowing that its products are especially made or especially adapted for infringing use. The Symantec antivirus and computer security products and services, including without limitation Symantec’s Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, include one or more material parts of the claimed invention of the ‘115 patent, and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

104. Columbia is informed and believes, and on that basis alleges, that Symantec and certain of its officers and employees have been aware of the existence of the ‘115 patent and, despite such knowledge, Symantec has continued to willfully, wantonly, and deliberately engage in acts of infringement of the ‘115 patent, justifying an award to Columbia of increased damages under 35 U.S.C. § 284, and attorneys’ fees and costs incurred under 35 U.S.C. § 285.

105. Symantec’s acts of infringement have caused damage to Columbia in an amount to be proven at trial. Columbia is entitled to recover damages adequate to compensate it for the infringement complained of herein, but in no event less than a reasonable royalty.



106. Columbia has suffered irreparable injury as a direct and proximate result of Symantec's conduct for which there is no adequate remedy at law.

**SIXTH CLAIM FOR RELIEF**

**(Infringement of U.S. Patent No. 8,601,322)**

107. Columbia re-alleges and incorporates by reference paragraphs 1 through 29 of this First Amended Complaint as if fully set forth herein.

108. On December 3, 2013, the '322 patent, entitled "Methods, Media And Systems For Detecting Anomalous Program Executions," was duly and legally issued by the PTO in full compliance with Title 35 of the United States Code. The '322 patent is valid and enforceable. A true and correct copy of the '322 patent is attached as Exhibit F.

109. Columbia is the owner of the entire right, title, and interest in and to the '322 patent, and has the right to bring this suit to recover damages for any current, past, or future infringement of the '322 patent.

110. The '322 patent includes 27 claims. By way of example, claim 1 of the '322 patent recites:

1. A method for detecting anomalous program executions, comprising:
  - executing at least a portion of a program in an emulator;
  - comparing a function call made in the emulator to a model of function calls for the at least a portion of the program, wherein the model is a combined model created from at least two models created at different times; and
  - identifying the function call as anomalous based on the comparison.

111. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and is currently infringing one or more claims of the '322 patent, in violation of 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority from Columbia, Symantec antivirus and computer security software products and services that detect anomalous program executions within the

scope of one or more claims of the '322 patent. The infringing antivirus and computer security software products and services that fall within the scope of one or more claims of the '322 patent, include without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, among others that may be identified during the course of these proceedings.

112. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '322 patent under 35 U.S.C. § 271(b) by actively inducing infringement of one or more claims of the '322 patent, literally and/or under the doctrine of equivalents, by, among other things, offering for sale, selling, promoting, and advertising the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, and by encouraging, teaching and instructing users, customers and potential customers to use those products and services in a manner that infringes one or more claims of the '322 patent.

113. Columbia is informed and believes, and on that basis alleges, that Symantec knowingly, intentionally, and actively aided and abetted the direct infringement (literally and/or under the doctrine of equivalents) of one or more claims of the '322 patent by providing manuals, guides and support and otherwise instructing, educating, and encouraging users, customers, and potential customers to use the Symantec antivirus and computer security software products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, in a manner that infringes the '322 patent. The statements and materials Symantec distributes to its customers regarding its products and services specifically instruct and endorse the use of methods and systems that directly infringe the '322 patent, literally and/or under the doctrine of equivalents.

114. Columbia is informed and believes, and on that basis alleges, that Symantec engaged in these acts with knowledge of the '322 patent and the specific intent to encourage its customers' and potential customers' direct infringement of one or more claims of the '322 patent.

115. Columbia is informed and believes, and on that basis alleges, that Symantec has infringed and continues to infringe the '322 patent under 35 U.S.C. § 271(c) by contributing to infringement of one or more claims of the '322 patent, literally and/or under the doctrine of equivalents, by offering for sale and selling the Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, to users, customers, and potential customers, with knowledge of the '322 patent and knowing that its products are especially made or especially adapted for infringing use. The Symantec antivirus and computer security products and services, including without limitation Symantec's Norton AntiVirus, Norton 360, Norton Internet Security, Symantec Endpoint Protection, Symantec Email Security.cloud, Symantec Mail Security, and related products and services, include one or more material parts of the claimed invention of the '322 patent, and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

116. Columbia is informed and believes, and on that basis alleges, that Symantec and certain of its officers and employees have been aware of the existence of the '322 patent and, despite such knowledge, Symantec has continued to willfully, wantonly, and deliberately engage in acts of infringement of the '322 patent, justifying an award to Columbia of increased damages under 35 U.S.C. § 284, and attorneys' fees and costs incurred under 35 U.S.C. § 285.

117. Symantec's acts of infringement have caused damage to Columbia in an amount to be proven at trial. Columbia is entitled to recover damages adequate to compensate it for the infringement complained of herein, but in no event less than a reasonable royalty.

118. Columbia has suffered irreparable injury as a direct and proximate result of Symantec's conduct for which there is no adequate remedy at law.

**SEVENTH CLAIM FOR RELIEF**

**(Fraudulent Concealment)**

119. Columbia hereby re-alleges and incorporates by reference paragraphs 1 through 16, and paragraphs 30 through 46, of the Complaint as if fully set forth herein.

120. Symantec had a duty to make full and complete disclosure to Columbia of all material facts relating to Symantec's filing and prosecution of the utility patent application directed to decoy technology that Columbia developed and subsequently disclosed to Symantec in confidence.

121. Symantec's duty of full and complete disclosure arose from, among other things, the confidential working relationship that Symantec had with Professors Stolfo and Keromytis relating to computer security technology, including decoy technology developed by Professors Stolfo and Keromytis and the preparation of confidential grant proposals to government agencies relating to that decoy technology. In light of their confidential working relationship, Columbia understood and expected that Symantec would not use or exploit for Symantec's own benefit materials and information that Columbia disclosed to Symantec in confidence during the course of their relationship, including materials and information reflected in Professor Keromytis's 2006 drafts of the NICECAP grant proposal.

122. Symantec's duty of full and complete disclosure also arose from, among other things, Symantec's filing and prosecution of the utility patent application directed to decoy technology that Columbia disclosed in confidence to Symantec and as to which Professors Stolfo and Keromytis are true inventors. Because Professors Stolfo and Keromytis are true inventors of the inventions claimed in the '643 patent, Symantec had a duty to disclose to them, and to Columbia, all material facts relating to the filing and prosecution of the utility application that matured into the '643 patent.

123. Symantec's duty of full and complete disclosure also arose from, among other things, incomplete and misleading statements that Symantec made to Columbia regarding Symantec's pursuit of patent protection directed to decoy technology that Columbia disclosed in confidence to Symantec. A party to a business transaction who makes incomplete statements to the other party regarding the subject matter of the transaction becomes obligated to make a full and complete disclosure of all material facts relating to that transaction.

124. In particular and by way of example, in March 2011, Symantec showed Columbia a draft of a utility patent application directed to Columbia's decoy technology which included Columbia Professors Stolfo, Keromytis, and McKeown as inventors (along with Symantec's Darren Shou and Marc Dacier), but after Professor Stolfo informed Symantec that he had invented the decoy technology covered by the application, Symantec failed to disclose to Columbia that it amended the application to list Mr. Shou as the sole inventor. Moreover, in April 2011, Symantec assured Columbia that Symantec would "work it out" with Columbia and would account for "Sal's filing" of an earlier patent application, but failed to disclose to Columbia that, a few days later, Symantec filed the utility application without naming Professors Stolfo and Keromytis (or anyone else from Columbia) as inventors.

125. Symantec's duty of full and complete disclosure also arose from, among other things, Symantec's superior and complete knowledge relating to the prosecution of the utility patent application directed to decoy technology that Professors Stolfo and Keromytis disclosed in confidence to Symantec. For example, Symantec had unique knowledge regarding its own efforts to prepare and submit the utility patent application to the PTO, including the content of the application and the inventors who would be named. Columbia is informed and believes, and on this basis alleges, that Symantec knew that Columbia was totally reliant upon Symantec for any information relating to Symantec's filing and prosecution of the utility patent application directed to Columbia's decoy technology. Instead of making full and complete disclosure to Columbia of all material facts relating to Symantec's filing and prosecution of the utility patent application directed to Columbia's decoy technology, Symantec sought to divert Columbia from

discovering the truth by making incomplete and partial disclosures and assuring Columbia that Symantec would work out issues relating to inventorship and Columbia's earlier patent filings.

126. Symantec breached its duty of full and complete disclosure by failing to disclose and deliberately concealing from Columbia material facts relating to Symantec's filing of the utility patent application, in Symantec's own name and for Symantec's benefit, directed at decoy technology that Columbia developed and subsequently disclosed to Symantec in confidence. In particular, Symantec failed to disclose and deliberately concealed from Columbia that Symantec filed and prosecuted a utility patent application directed to decoy technology that Columbia developed and subsequently disclosed to Symantec in confidence, including that the utility patent application omitted Professors Stolfo and Keromytis as inventors and instead included a Symantec employee as the sole named inventor, even though Professors Stolfo and Keromytis were true inventors of the inventions disclosed and claimed in the utility application.

127. Columbia is informed and believes, and on that basis alleges, that Symantec's failure to disclose and deliberate concealment as described herein was willful and intentional. Although Professors Stolfo and Keromytis informed Symantec that they, and not Symantec employees, should be named as inventors on the utility patent application directed to decoy technology that Columbia disclosed to Symantec in confidence, Symantec deleted their names as inventors from the draft utility application that Symantec provided to them. Moreover, after lulling Columbia into believing that Symantec would refrain from filing the proposed utility application on Columbia's decoy technology, Symantec secretly filed the application without Columbia's knowledge and without providing any further information to Columbia concerning the application. Symantec then specifically took steps to prevent Columbia from learning anything about the application—to wit, requesting that the PTO not publish the application, as would ordinarily occur pursuant to applicable rules.

128. Columbia is informed and believes, and on that basis alleges, that Symantec failed to disclose to Columbia, and deliberately concealed from Columbia, Symantec's filing of the utility application, and the omission of Professors Stolfo and Keromytis as inventors on that

application, to avoid disrupting the beneficial relationship that Symantec enjoyed with Columbia and Professors Stolfo and Keromytis, and to secretly retain for Symantec's own benefit the financial, competitive and other benefits of Professors Stolfo and Keromytis's decoy technology, including the benefits accorded by patent protection.

129. Columbia reasonably and justifiably relied on Symantec's failure to disclose to Columbia material information regarding Symantec's filing of the utility patent application with respect to Professors Stolfo and Keromytis's inventions. Symantec's actions in the PTO with respect to the utility application that matured into the '643 patent, including the fact that Symantec had filed the application, were unknown to Columbia. Symantec's failure to disclose and deliberate concealment diverted Columbia from making prudent investigations and taking steps to protect Columbia's interests in the technology and avoid other harm.

130. In particular, and for example, as a result of Symantec's actions, Columbia was prevented from seeking to have Professors Stolfo and Keromytis named as inventors on the applications and declared true inventors of the claimed subject matter of the '643 patent. Columbia also was prevented from taking other steps, including in the PTO or the courts, to prevent the '643 patent from issuing and/or from being assigned to Symantec. Columbia also continued to work with Symantec, and to allow Symantec to exploit its confidential working relationship with Columbia for the purpose of gaining early access to Columbia's groundbreaking research, unaware that Symantec had sought patents in Symantec's own name and for its own benefit directed at Professors Stolfo and Keromytis's decoy technology.

131. Symantec's fraudulent conduct was willful and wanton, such that Symantec acted with such recklessness or negligence to evince a conscious disregard of Columbia's property rights.

132. Columbia has suffered damages as a result of Symantec's actions and concealment, in an amount to be determined according to proof. For example, Symantec deprived Columbia of the benefits, financial opportunities and prestige Columbia would have enjoyed if Symantec had not sought and obtained in its own name patents directed at Professors

Stolfo and Keromytis's decoy technology and if Columbia and its researchers had been duly recognized and credited with the invention.

**EIGHTH CLAIM FOR RELIEF**

**(Unjust Enrichment)**

133. Columbia hereby re-alleges and incorporates by reference paragraphs 1 through 16, paragraphs 30 through 46, and paragraphs 120 through 130 of the Complaint as if fully set forth herein

134. Columbia conferred a benefit on Symantec by disclosing in confidence to Symantec Columbia's materials and technology, and the disclosures merged therein, relating to Columbia's decoy technology reflected in, among other things, the 2006 drafts of the NICECAP grant proposal that Professor Keromytis prepared and delivered to Symantec. Columbia is informed and believes, and on this basis alleges, that Symantec was aware at the time that Columbia's disclosures were made in confidence pursuant to confidential working relationship that the parties enjoyed in collaborating with respect to preparation of joint grant proposals to federal agencies.

135. Columbia is informed and believes, and on this basis alleges, that Symantec was aware of and acknowledged that Columbia's materials and technology, and the disclosures merged therein, relating to Columbia's decoy technology conferred a benefit on Symantec. Symantec used Columbia's materials and technology, and the disclosures merged therein, relating to Columbia's decoy technology reflected in, among other things, the 2006 drafts of the NICECAP grant proposal, without Columbia's knowledge or permission, as evidenced by Symantec's filing and prosecuting a utility patent application on that technology which matured into the '643 patent. In so doing, Symantec obtained the incremental benefit unavailable to the public of securing a patent on decoy technology developed by Columbia and disclosed to Symantec in confidence, and of gaining a head start in the development of products and services incorporating, based on, or derived from Columbia's decoy technology.



136. Symantec has accepted and retained the benefit of Columbia's property for Symantec's own advantage, at Columbia's expense and without compensation to Columbia. Symantec has been and continues to be unjustly enriched by obtaining the incremental benefit unavailable to the public of securing a patent on decoy technology developed by Columbia and disclosed to Symantec in confidence and thereby profiting from the wrongful conduct described in this First Amended Complaint. It would be inequitable and unjust for Symantec to retain these benefits.

137. As described in paragraphs 126 through 16, paragraphs 30 through 46, and paragraphs 120 through 130 of this First Amended Complaint, Symantec engaged in intentional and willful fraudulent concealment with the purpose and goal of preventing and obstructing Columbia from discovering the existence of Symantec's wrongful conduct and Columbia's right to recover for Symantec's unjust enrichment.

138. Columbia has incurred, and continues to incur, detriment in the form of loss of money and property as a result of Symantec's wrongful procurement and use of Columbia's property, including the right to any patent based on Professors Stolfo and Keromytis's decoy technology. These property rights are unique and there is no adequate remedy at law. The harm to Columbia is and continues to be substantial and irreparable.

### **NINTH CLAIM FOR RELIEF**

#### **(Conversion)**

139. Columbia hereby re-alleges and incorporates by reference paragraphs 1 through 16, paragraphs 30 through 46, paragraphs 120 through 130, and paragraphs 134 through 137 of the First Amended Complaint as if fully set forth herein

140. Columbia is, and at all pertinent times was, the owner of materials and technology, and the disclosures merged therein, relating to Columbia's decoy technology reflected in, among other things, the 2006 draft grant proposal that Professor Keromytis prepared and delivered to Symantec.

141. Symantec has wrongfully exercised dominion over the property that Columbia provided Symantec in confidence and for the sole purpose of submitting joint grant proposals to the United States government. Columbia is informed and believes, and on this basis alleges, that instead of using the materials and technology, and the disclosures merged therein, relating to Columbia's decoy technology for the purpose of submitting grant proposals, Symantec exploited its confidential working relationship with Professors Stolfo and Keromytis to gain early access to Columbia's groundbreaking work in decoy technology in order to advance Symantec's competitive position in the market. Symantec used Columbia's materials and technology, and the disclosures merged therein, relating to Columbia's decoy technology reflected in, among other things, the 2006 drafts of the NICECAP grant proposal, for unauthorized purposes without Columbia's knowledge or permission by, among other things, filing and prosecuting a utility patent application on that technology which matured into the '643 patent. In so doing, Symantec applied Columbia's property to its own use, excluded Columbia from the use of that property, and obtained the incremental benefit unavailable to the public of securing a patent on decoy technology developed by Columbia and disclosed to Symantec in confidence, and of gaining a head start in the development of products and services incorporating, based on, or derived from Columbia's decoy technology.

142. In furtherance of its conversion of Columbia's property, Symantec failed to disclose and deliberately concealed from Columbia that Symantec filed and prosecuted a utility patent application directed to decoy technology that Columbia developed and subsequently disclosed to Symantec in confidence, including that the utility patent application omitted Professors Stolfo and Keromytis as inventors and instead included a Symantec employee as the sole named inventor. Columbia is informed and believes, and on that basis alleges, that Symantec's conversion of Columbia's property and its failure to disclose and deliberate concealment as described herein were willful and intentional.

143. Symantec's conversion was willful and wanton, such that Symantec acted with such recklessness or negligence to evince a conscious disregard of Columbia's property rights.

144. As a direct and proximate result of Symantec's conversion of Columbia's property, Columbia has suffered, and will continue to suffer, harm and substantial damages in an amount and nature to be proven at trial.

#### **TENTH CLAIM FOR RELIEF**

##### **(Correction of Inventorship for U.S. Patent No. 8,549,643 – Sole Inventorship)**

145. Columbia hereby re-alleges and incorporates by reference paragraphs 1 through 16, and paragraphs 30 through 46, of this First Amended Complaint as if fully set forth herein.

146. Professors Stolfo and Keromytis invented the subject matter claimed in the '643 patent and are the sole inventors of all the claims of the '643 patent.

147. Professors Stolfo and Keromytis are not listed on the '643 patent as the sole inventors.

148. The omission of Professors Stolfo and Keromytis as the sole inventors on the '643 patent occurred without any deceptive intent on the part of Professors Stolfo and Keromytis.

149. To reflect the true and correct inventors of the subject matter of the '643 patent, and secure Columbia's rights therein, Professors Stolfo and Keromytis should be named as the sole inventors on the '643 patent.

#### **ELEVENTH CLAIM FOR RELIEF**

##### **(Correction of Inventorship for U.S. Patent No. 8,549,643 – Joint Inventorship)**

150. Columbia hereby re-alleges and incorporates by reference paragraphs 1 through 16, and paragraphs 30 through 46, of this First Amended Complaint as if fully set forth herein.

151. In the event that Professors Stolfo and Keromytis are not deemed the sole inventors of all the claims of the '643 patent, Columbia alternatively alleges that Professors Stolfo and Keromytis invented the subject matter claimed in the '643 patent in collaboration with the other named inventor and are joint inventors of at least one claim of the '643 patent.

152. Professors Stolfo and Keromytis are not listed on the '643 patent as joint inventors.

153. The omission of Professors Stolfo and Keromytis as joint inventors on the '643 patent occurred without any deceptive intent on the part of Professors Stolfo and Keromytis.

154. To reflect the true and correct inventors of the subject matter of the '643 patent, and secure Columbia's rights therein, in the event that Professors Stolfo and Keromytis are not deemed the sole inventors of all the claims of the '643 patent, Professors Stolfo and Keromytis alternatively should be named as joint inventors on the '643 patent.

#### **PRAYER FOR RELIEF**

WHEREFORE, Columbia prays for relief against Symantec as follows:

- A. For a determination that Symantec infringes one or more claims of the '544, '907, '084, '306, '115, and '322 patents, and that Symantec's infringement is willful;
- B. For damages adequate to compensate Columbia for Symantec's infringement of the '544, '907, '084, '306, '115, and '322 patents in an amount to be determined at trial, together with interest and costs under 35 U.S.C. § 284;
- C. For entry of all just and proper equitable relief from Symantec's continuing infringement of the '544, '907, '084, '306, '115, and '322 patents;
- D. For an order correcting inventorship on the '643 patent to name Professors Stolfo and Keromytis as the sole inventors, or in the alternative as joint inventors;
- E. For imposition of constructive trust requiring that Symantec hold the '643 patent (and all patents that claim priority to or through the '643 patent) for the benefit of Columbia;
- F. For an award of pre-judgment and post-judgment interest on the damages assessed;
- G. For supplemental damages incurred by Columbia, including without limitation interest;
- H. For a determination that this is an exceptional case under 35 U.S.C. § 285 and that an award of attorneys' fees and costs to Columbia is warranted;
- I. For a determination that Symantec has converted Columbia's property;

J. For a determination that Symantec has been unjustly enriched at the expense of Columbia;

K. For damages adequate to compensate Columbia for Symantec's conversion and fraudulent concealment, along with punitive damages for willful and wanton misconduct;

L. For an order that Symantec be required to disgorge and return to Columbia the amounts by which it has been unjustly enriched as a result of its wrongful conduct and pay Columbia other damages to which Columbia may be entitled.

M. For entry of judgment against Symantec and in favor of Columbia in all respects; and

N. For such other and further relief as this Court deems just and proper.

December 24, 2013

Respectfully submitted,  
THE TRUSTEES OF COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK

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**DEMAND FOR JURY TRIAL**

Pursuant to Federal Rule of Civil Procedure 38(b), Columbia hereby demands a trial by jury on all issues triable to a jury.

December 24, 2013

Respectfully submitted,  
THE TRUSTEES OF COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK

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