1 HILL, KERTSCHER & WHARTON, LLP Vivek Ganti (SBN 275554) 2 Steven G. Hill (pro hac vice pending) 3 3350 Riverwood Parkway, Suite 800 Atlanta, GA 30339 4 Telephone: (770 953-0995 5 Fax: (770) 953-1358 E-Mail: VG@hkw-law.com 6 SGH@hwk-law.com 7 VICK LAW GROUP, APC Scott Vick (SBN 171944) 9 800 West Sixth Street, Suite 1220 Los Angeles, California 90017 10 Telephone: (213) 784-6225 Facsimile: (213) 784-6227 11 E-mail: Scott@vicklawgroup.com 12 Attorneys for Plaintiff Computer Protection 13 IP, LLC 14 UNITED STATES DISTRICT COURT 15 CENTRAL DISTRICT OF CALIFORNIA 16 COMPUTER PROTECTION IP, Case No. 2:17-CV-08858 JAK (JEMx) LLC 17 Plaintiff, 18 VS. SECOND AMENDED 19 **COMPLAINT FOR PATENT** DREAMHOST, LLC., and NEW **INFRINGEMENT** 20 DREAM NETWORK, LLC. 21 JURY TRIAL DEMANDED Defendants. 22 23 24 25 26 27 28

Computer Protection IP, LLC. ("Computer Protection" or "Plaintiff") files this Second Amended Complaint against DreamHost, LLC and New Dream Network, LLC (collectively, "DreamHost" or "Defendant") for infringement of U.S. Patent. No. 8,468,591 ("the '591 Patent" or the "Patent-in-Suit"), hereby alleging as follows:

Nature of the Suit

1. This is a claim for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code. This is a civil action for the infringement of the '591 Patent (attached hereto as Exhibit "A") against DreamHost under the Patent Laws of the United States 35 U.S.C. § 1, et seq.

The Parties

- 2. Computer Protection is a Georgia limited liability company.
- 3. Computer Protection owns the Patent-in-Suit.
- 4. DreamHost, LLC is a Delaware limited liability web hosting and computer services company business authorized to do business in California and having its principal place of business at 707 Wilshire Blvd., Suite 5050, Los Angeles, CA 90017. DreamHost, LLC is owned and operated by New Dream Network, LLC, a California limited liability company having a principal place of business in this District, located at 707 Wilshire Blvd., Suite 5050, Los Angeles, California 90017. DreamHost can be served with process by service upon its registered agent CT Corporation System, 818 West Seventh Street, Suite 930, Los Angeles, CA 90017.
- 5. As shown in this Complaint, DreamHost makes and uses a cloud-based operating system called the "DreamHost Cloud," which controls large pools of computer, storage, and networking resources throughout a datacenter, managed through a dashboard that gives administrators control while empowering their users to provision resources through a web interface. As explained herein, at a

Patent-in-Suit.

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minimum, the making and use of said system by DreamHost directly infringes the

Jurisdiction and Venue

- This Court has jurisdiction over the subject matter of this action 6. pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, including 35 U.S.C. § 271 et seq.
- Venue is proper in this judicial District pursuant to 28 U.S.C. §§ 1391 7. and 1400(b). Among other things, DreamHost resides and transacts business in this District. Furthermore, on information and belief, DreamHost has committed acts of patent infringement in this District, including the making and use of the system described in paragraph 5 above.
- On information and belief, DreamHost is subject to this Court's 8. specific personal jurisdiction pursuant to due process, due at least to its substantial business in this forum, including (i) at least a portion of the infringements alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in California and in this District.

The '591 Patent

- 9. The '591 Patent, titled "Client Authentication and Data Management System," was duly and legally issued by the United States Patent and Trademark Office on June 18, 2013. See Ex. A. Ariel Silverstone is the inventor of the '591 Patent.
- 10. Enterprise-wide computer systems are being accessed more than ever via a variety of computing devices which are difficult to track. This is a problem unique in the field of computing. Unauthorized access into computer systems compromises and even undermines the efficiency of these systems.

- 11. When remote unauthorized access to a computer system occurs, it may or may not be detected in time to prevent the attacker from accessing sensitive data, destroying sensitive data, or implanting bogus data into the network.
- 12. Prompt responses to successful security breaches often include the use of security automation tools, in order to limit the amount of time an attacker has access to the network. These tools, however, consume valuable computer resources and reduce the overall efficiency of the computer network.
- 13. These security automation tools include intrusion prevention systems (IPS). When an IPS detects a potential incursion, it will automatically block network traffic, preventing attacks from reaching their intended targets. IPS systems at work consume valuable computer resources and reduce the overall efficiency of the computer network.
- 14. If an unwanted intrusion into a computer system occurs, data loss prevention (DLP) systems may also step in and seek to prevent the successful theft of sensitive information. DLP systems at work consume valuable system resources and reduce the overall efficiency of the computer network. DLP systems monitor traffic leaving the network, looking for transmissions of sensitive information by system users. If the DLP solution detects such activity, it can notify security administrators.
- 15. In the wake of a detected, unauthorized access into a computer system, security analysts responding will often perform a manual investigation into the breach, looking for evidence of how the attacker gained access and using that information to stop the flow of data out of the organization. Actions taken by security professionals may include changing firewall rules, updating security policies, adding hosts to a blacklist and quarantining suspect systems. These actions require security analysts to consume valuable computer resources and reduce the overall efficiency of the computer network in the near term.

- 16. Automated forensic tools also allow the close examination of systems involved after an unauthorized access event has occurred. Security information and event management (SIEM) systems allow the review and correlation of records from a wide variety of technology components, as well as threat intelligence information from security partners. The use of these systems, however, consume valuable computer resources and reduce the overall efficiency of the computer network.
- 17. The Internet of things ("IoT") is the network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these objects to connect and exchange data. The increasing trend towards IoT has only exacerbated concerns about how access by unauthorized devices may compromise the efficient operation of the IoT.
- 18. IoT includes a collection of objects equipped with sensors which generate data and transmit it over a communications network to each other and to servers which control the sensors and collect data from them.
- 19. An example of this is a smart metering system, which involves a network of electricity meters that measure consumer electricity usage and send the data back to an electricity company's servers. The servers may also send data, such as tariff changes or firmware updates, back to the meters.
- 20. In the example above, a fake meter that transmits false data (probably indicating less consumption than is actually occurring) could be installed on the network to impersonate a genuine one.
- 21. In other example, malicious users could install a fake server to issue malicious commands or upload malicious firmware to meters on the network.
- 22. In another example, injecting fake measurements upon unauthorized access could disrupt the control processes and cause them to react inappropriately or dangerously, or could be used to mask physical attacks.

- 23. In another example, sending incorrect commands could be used to trigger unplanned events, to deliberately send some physical resource (water, oil, electricity, etc.) to an unplanned destination.
- 24. These examples are meant to illustrate the potentially devastating impacts that unauthorized access poses to the efficiency and efficient operation of the IoT and underlying computer systems used to support it.
- 25. Recognizing that enterprise-wide computer systems are now being accessed more than ever via a variety of computing devices which are difficult to track, numerous solutions have been proposed and adopted. For example, Network Access Control (NAC) is an approach that attempts to unify endpoint security technology user or system authentication and network security enforcement. Other approaches include the adoption of public key cryptography standards.
- 26. The '591 Patent identifies a new approach to solve this technological problem. Generally speaking, it improves the security of these systems by special programming and a unique tool in the field of computing, i.e., a thin layer of virtual machine management software, configured to create a virtual machine manager which will assume control over system access during the boot process. The claims of the '591 Patent describe implementing a unique virtual machine manager which is configured specially to operate in conjunction with the authentication server of an enterprise computer system to implement an authentication process that in turn controls the boot process as a means of protecting a system against access by an unauthorized computing device. The claims of the '591 Patent, which were invented in 2006, achieve this solution using a non-conventional and non-generic arrangement of computing components.
- 27. The claims of the '591 Patent include an arrangement of computing components which were not routine, conventional or generic in or before the 2006 time frame. Specifically, in and before 2006, virtualization technologies were not referred to or used in communication with an authentication server. Attached as

Exhibit B is a June 26, 2006 article from IT Pro on virtualization technologies which is representative of the state of the art at that time. The articles provides a thorough discussion of the use of virtual machines with desktops and servers, including a detailed discussion of the state of the product offerings and solutions in the virtualization space. None of the technologies in question relate to playing a part in the authentication of protected computing devices.

- Authorization Technologies and Solution End States" published by Microsoft and dated June 27, 2006. It provides a thorough overview of authentication and authorization technologies surrounding user access to operating systems such as Microsoft Windows®. In the discussion provided by the article, there is no reference to the use of a hypervisor or any other virtual machine manager.
- 29. Based at least upon the foregoing, and the teachings of other similar references in and before 2006, the limitations in each of the claims of the '591 Patent relating to the reconfiguration of a standard virtual machine manager into a specially programmed used to communicate with an authentication server during the boot process was not common, routine, ordinary, well-understood, conventional or generic at the time of invention.
- 30. Computer Protection is the exclusive owner of all rights, title, and interest in the '591 Patent and has the right to sue and recover for any past, current or future infringement of the '591 Patent.
 - 31. The '591 Patent is valid and enforceable.

The DreamHost Cloud and DreamCompute

32. As described herein, DreamHost makes and uses the DreamHost Cloud, a cloud-based system that provides centralized network control of data processing resources including storage and servers hosted on networked computing devices. This cloud-based operating system controls large pools of compute, storage, and networking resources, all managed through a dashboard that gives

administrators control while empowering their users to provision resources through a web interface. DreamHost Cloud is used by DreamHost to control cloud computing environments providing Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) capabilities. These capabilities require coordination and control of distributed computing resources including compute nodes and storage nodes interconnected by and communicating over a high-speed computer network.

- 33. DreamHost's first product built on the architecture and resources of the aforementioned DreamHost Cloud system is DreamCompute. DreamCompute allows customers to create virtual machines, block devices, and networks ondemand via standard APIs and command-line tools or via an intuitive web-based user interface. DreamHost offers the use of DreamCompute to its customers for a fee.
- 34. DreamCompute runs on a mixture of high-end Dell servers running Ubuntu Linux.
- 35. Server types being used to support DreamCompute include storage nodes and hypervisor nodes for hosting and managing virtual machines (VMs). These are the server types generally used to support the DreamHost Cloud system.
- 36. The DreamCompute hypervisor nodes are optimized for hosting VMs running on top of a KVM hypervisor, featuring 64 AMD cores and 192 GB of RAM.
- 37. The DreamCompute VMs are started by creating an instance using the DreamCompute dashboard.
- 38. In DreamCompute, each instance is based on a flavor. Flavors define the amount of resources allocated to the VM in terms of vCPUs, memory, and boot volume size.
- 39. DreamCompute provides Flavors small enough for companies just starting out to large ones for companies with greater computing needs.

- 40. The storage nodes in DreamCompute are lower-powered, higher-density servers, each with twelve 3 TB disks, each running Ceph, which is an open source, massively distributed, fault tolerant storage system.
- 41. As is the case with DreamHost Cloud, DreamCompute features a "cockpit" pod, which represents the "brain" of the cloud.
- 42. In the aforementioned cockpit pod, services run on a mixture of bare metal and VMs, including Horizon, Glance, Nova, Neutron, Keystone, and Cinder, along with Apache, HAProxy load balancers, MySQL databases, and RabbitMQ queueing systems. The entire system is configured and managed by Chef, and is monitored using open source tools (*e.g.*, logstash, graphite, collectd, and nagios).
- 43. Every VM in DreamCompute boots from a virtual block device backed by a multi-petabyte Ceph storage cluster. Operating system images themselves are stored in the same cluster as these block devices, enabling DreamCompute to leverage Ceph's Copy-on-Write (COW) functionality. Rather than downloading the operating system image from a central store to a hypervisor (which is time consuming) and then provisioning a new block device, Ceph enables the VMs to boot nearly instantly from a thin-provisioned copy of the OS image. As a result, VMs in DreamCompute can be created and fully operational in as little as 40 seconds.
- 44. DreamCompute was built to provide full network virtualization for every customer. In DreamCompute, the physical network represents an "underlay," which is invisible to the customer. A virtual network fabric an "overlay" is then layered on top, providing every customer in DreamCompute with a virtual OSI Layer 2 (L2) switch, which is completely isolated at L2 from every other customer.

COUNT I – INFRINGEMENT OF THE '591 PATENT

45. Plaintiff incorporates by reference the preceding paragraphs 1-27 as if they were restated fully herein.

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- 46. On February 21, 2018, Plaintiff served upon counsel for the Defendants its Preliminary Infringement Contentions. A true and correct copy of these contentions are attached as Exhibit D. Plaintiff asserts that claims 1, 3, 4, 6, 8, 13, 17, 39, 40, 41, 42, 43, 48, 49 and 52 ("Asserted Claims") are infringed by the DreamHost Cloud and DreamHost Compute ("Accused Instrumentalities"). See Ex. D, p. 2.
- 47. Each of the limitations of claim 1 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, pp. 4-23 (Claim Chart providing infringement analysis of claim 1).
- 48. Each of the limitations of claim 3 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, pp. 23-24 (Claim Chart providing infringement analysis of claim 1).
- Each of the limitations of claim 4 of the '591 Patent are embodied in 49. the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, pp. 24-25 (Claim Chart providing infringement analysis of claim 1).
- 50. Each of the limitations of claim 6 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, pp. 25-26 (Claim Chart providing infringement analysis of claim 1).

- 51. Each of the limitations of claim 8 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. *See* Ex. D, pp. 26-27 (Claim Chart providing infringement analysis of claim 1).
- 52. Each of the limitations of claim 13 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. *See* Ex. D, pp. 27-28 (Claim Chart providing infringement analysis of claim 1).
- 53. Each of the limitations of claim 17 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 17 of the '591 Patent. *See* Ex. D, pp. 28-29 (Claim Chart providing infringement analysis of claim 1).
- 54. Each of the limitations of claim 39 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. *See* Ex. D, pp. 29-34 (Claim Chart providing infringement analysis of claim 1).
- 55. Each of the limitations of claim 40 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. *See* Ex. D, pp. 34-35 (Claim Chart providing infringement analysis of claim 1).
- 56. Each of the limitations of claim 41 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the

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- '591 Patent. See Ex. D, pp. 35-36 (Claim Chart providing infringement analysis of claim 1).
- 57. Each of the limitations of claim 42 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, p. 36. (Claim Chart providing infringement analysis of claim 1).
- 58. Each of the limitations of claim 43 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, p. 36 (Claim Chart providing infringement analysis of claim 1).
- 59. Each of the limitations of claim 48 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, pp. 37-44 (Claim Chart providing infringement analysis of claim 1).
- Each of the limitations of claim 49 of the '591 Patent are embodied in 60. the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, pp. 44-45 (Claim Chart providing infringement analysis of claim 1).
- 61. Each of the limitations of claim 52 of the '591 Patent are embodied in the making and in the use of DreamHost Cloud and in the related DreamCompute product. As such, DreamHost Cloud and DreamCompute infringe claim 1 of the '591 Patent. See Ex. D, pp. 45-46 (Claim Chart providing infringement analysis of claim 1).

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- 63. DreamHost makes and uses the DreamHost Cloud system, which literally infringes at least one claim of the '591 Patent under 35 U.S.C. § 271(a).
- 64. Specifically, DreamHost infringes at least one claim of the '591 Patent by testing, developing, designing, validating, or otherwise making or using the DreamHost Cloud system, or similar versions thereof, for development, marketing, training, or commercial purposes.
- 65. DreamHost also makes, uses, offers for sale and sells DreamCompute to its customers. DreamCompute infringes at least one claim of the '591 Patent under 35 U.S.C. § 271(a).
- 66. Specifically, DreamHost infringes at least one claim of the '591 Patent by testing, developing, designing, validating, or otherwise making, using, offering for sale, or selling DreamCompute, or similar versions thereof, for development, marketing, training, or commercial purposes.
- 67. Third parties, including the DreamHost customers, have infringed, and continue to infringe, one or more claims of the '591 Patent under 35 U.S.C. § 271(a), either literally and/or under the doctrine of equivalents, by using DreamCompute in the United States.
- 68. Through its actions relating to the marketing, offer for sale and sale of DreamCompute, and making and use of the DreamHost Cloud to support DreamCompute, DreamHost has encouraged and caused its customers to infringe one or more claims of the '591 Patent. DreamHost knew or should have known that its acts would cause its customers to infringe the '591 Patent, in this District and elsewhere in the United States.
- 69. DreamHost has knowledge and notice of the '591 Patent and its infringement as of the date of the service of the original complaint in this case.
- 70. Nevertheless, DreamHost has induced infringement, and continues to induce infringement, of one or more claims of the '591 Patent under 35 U.S.C. § 271(b). DreamHost actively, knowingly, and intentionally induced, and continues

to actively, knowingly, and intentionally induce, infringement of the '591 Patent by marketing, selling and supporting DreamCompute with the knowledge and intent that third parties will use DreamCompute in the United States, for its intended purpose, which infringes the '591 Patent; and with the knowledge and intent to encourage and facilitate the infringement through the dissemination of DreamCompute and/or the creation and dissemination of documentation and technical information related to DreamCompute.

- 71. Computer Protection is currently the exclusive owner of all rights, title, and interest in the '591 Patent and has the right to sue and recover for any damages caused by past infringement of the '591 Patent, including the damages DreamHost's infringement has caused to Computer Protection.
- 72. Computer Protection has been and continues to be damaged by DreamHost's infringement of the '591 Patent. As such, Computer Protection is entitled to an award of money damages. This includes, but is not limited to, a reasonable royalty.
- 73. Upon information and belief, DreamHost will continue to infringe the '591 Patent unless enjoined by this Court.

Prayer for Relief

Wherefore, Plaintiff Computer Protection respectfully requests that this Court enter judgment as follows:

- a) adjudging that one or more the claims of the '591 Patent are valid and infringed, either literally and/or under the doctrine of equivalents;
- awarding Computer Protection all damages to which it is entitled under 35 U.S.C. § 284, including but not limited to a reasonable royalty, for the past infringement and any continuing or future infringement, and ordering a full accounting of the same;
- c) awarding Computer Protection pre-judgment and post-judgment interest on its damages; and

1	d) awarding Compu	ter Protection such other and further relief in law or	
2		ourt deems just and proper.	
3	The system of th	January January P.	
4	Dated: March 7, 2018	VICK LAW GROUP, APC	
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	SECOND AMENDED COMPLAINT FOR PATENT		

1	r	Demand for Jury Trial	
2	Computer Protection hereby demands a trial by jury on all claims and issues so		
3	triable pursuant to Fed. R. Civ. Pro. 38(b).		
4	Dated: March 7, 2018	HILL, KERTSCHER & WHARTON, LLP	
5			
6	By:	/s/ Vivek Ganti Vivek Ganti (SBN 275554)	
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	SECOND AMENDED COMPLAINT FOR PATENT		