

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT	
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT	
<b>CONVEYING PARTY DATA</b>		
	<b>Name</b>	<b>Execution Date</b>
	REPLAY SOLUTIONS, INC.	06/05/2012
<b>RECEIVING PARTY DATA</b>		
<b>Name:</b>	CA, INC.	
<b>Street Address:</b>	520 MADISON AVE.	
<b>City:</b>	NEW YORK	
<b>State/Country:</b>	NEW YORK	
<b>Postal Code:</b>	10022	
<b>PROPERTY NUMBERS Total: 1</b>		
	<b>Property Type</b>	<b>Number</b>
	Application Number:	15401387
<b>CORRESPONDENCE DATA</b>		
<b>Fax Number:</b>	(415)489-4150	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>		
<b>Phone:</b>	415-489-4100	
<b>Email:</b>	wgoy@vierramagen.com	
<b>Correspondent Name:</b>	RONALD M. POMERENKE	
<b>Address Line 1:</b>	VIERRA MAGEN MARCUS LLP	
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<b>Address Line 4:</b>	SAN FRANCISCO, CALIFORNIA 94105	
<b>ATTORNEY DOCKET NUMBER:</b>	WILY-03008US2-REPLAY-CA	
<b>NAME OF SUBMITTER:</b>	RONALD M. POMERENKE	
<b>SIGNATURE:</b>	/RonaldMPomerenke#43009/	
<b>DATE SIGNED:</b>	01/09/2017	
<b>Total Attachments: 6</b>		
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## **PATENT ASSIGNMENT**

WHEREAS, REPLAY SOLUTIONS, INC. (hereafter "Assignor"), a Delaware corporation, having an address of Suite 400, 2100 Seaport Boulevard, Redwood City, California 94063, is the owner of the patents and patent applications set forth on Exhibit A hereto and the inventions described and claimed therein (hereafter the "Patent Property"); and

WHEREAS, CA, INC. (hereafter "Assignee"), a Delaware corporation, having an address of One CA Plaza, Islandia, New York 11749, desires to acquire all right, title and interest in and to the Patent Property.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor does hereby sell, assign, transfer and set over to Assignee, all its right, title and interest in and to the Patent Property, as well as all provisionals, continuations, divisions, continuations-in-part, of said Patent Property, and all reissues, reexaminations, and extensions thereof, the same to be held and enjoyed by Assignee for its own use and benefit, and for the use and benefit of its successors, assigns, or legal representatives, to the end of the term or terms for which such Patent Property may be granted or reissued, as fully and entirely as the same would have been held and enjoyed by Assignor if this assignment and sale had not been made.

Assignor also assigns to Assignee, all right, title and interest in and to the inventions disclosed in said Patent Property throughout the world, including the right to file applications and obtain patents, utility models, industrial models and designs for said Patent Property in its own name throughout the world, including all rights to publish cautionary notices reserving ownership of said inventions and all rights to register said Patent Property in appropriate registries; and Assignor further agrees to execute any and all powers of attorney, applications, assignments, declarations, affidavits, and any other papers in connection therewith necessary to perfect such right, title and interest in Assignee.

Assignor also assigns unto Assignee all claims for damages by reason of infringement prior to the assignment date of the Patent Property throughout the world, with the right to sue for and collect the same for its own use and benefit, and for the use and benefit of its successors, assigns and other legal representatives.

Assignor, at the expense of Assignee, will testify in any legal proceedings, sign all lawful papers, execute all provisional, divisional, continuation, continuation-in-part, reissue and substitute applications, make lawful oaths and declarations, and generally do everything possible to vest title in Assignee and to aid Assignee to obtain and enforce proper protection for said Patent Property in all countries.

IN WITNESS WHEREOF, the parties have caused this Patent Assignment to be executed on the dates and in the capacities shown below.

REPLAY SOLUTIONS, INC.

By: 

Its: CEO

Date: June 5, 2012

*Larry Lunetta*

CA, INC.

By: \_\_\_\_\_

Its: \_\_\_\_\_

Date: \_\_\_\_\_

Assignor also assigns unto Assignee all claims for damages by reason of infringement prior to the assignment date of the Patent Property throughout the world, with the right to sue for and collect the same for its own use and benefit, and for the use and benefit of its successors, assigns and other legal representatives.

Assignor, at the expense of Assignee, will testify in any legal proceedings, sign all lawful papers, execute all provisional, divisional, continuation, continuation-in-part, reissue and substitute applications, make lawful oaths and declarations, and generally do everything possible to vest title in Assignee and to aid Assignee to obtain and enforce proper protection for said Patent Property in all countries.

IN WITNESS WHEREOF, the parties have caused this Patent Assignment to be executed on the dates and in the capacities shown below.

REPLAY SOLUTIONS, INC.

By: \_\_\_\_\_

Its: \_\_\_\_\_

Date: \_\_\_\_\_

CA, INC.

By:  \_\_\_\_\_

Its: SVP \_\_\_\_\_

Date: 5 JUNE 2012 \_\_\_\_\_

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

Before me, the undersigned, a Notary Public on this day personally appeared \_\_\_\_\_, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Replay Solutions, Inc., a corporation, and that he/she had executed the same as the act of such company for the purpose and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this \_\_\_\_\_ day of \_\_\_\_\_, 2012.

\_\_\_\_\_  
Notary Public in and for  
\_\_\_\_\_

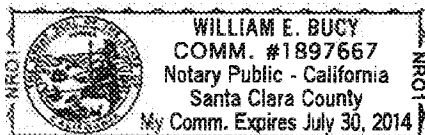
STATE OF California

COUNTY OF San Mateo

§  
§  
§

Before me, the undersigned, a Notary Public on this day personally appeared Jonathan David Forsane known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said CA, Inc., a corporation, and that he/she had executed the same as the act of such company for the purpose and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office, this 5<sup>th</sup> day of June, 2012.



[Signature]  
Notary Public in and for  
California

## EXHIBIT A

### Patents

Title	Country	Appln. No.	Filing Date	Reg. No.	Reg. Date
Advancing and Rewinding a Replayed Program Execution.	USA	11/943,889	11/21/2007	8,079,019	12/13/2011
Detecting Race Conditions in Computer Programs.	USA	11/449,157	06/07/2006	7,673,181	03/02/2010
Recording and Replaying Computer Programs.	USA	11/169,522	06/28/2005	7,506,318	03/17/2009

### Patent Applications

Title	Country	Appln. No.	Filing Date
Advancing and Rewinding a Replayed Virtual Machine Application Program Execution.	USA	12/825,923	06/29/2010
Ensuring Determinism During Programmatic Replay in a Virtual Machine.	USA	12/826,447	06/29/2010
Ensuring Determinism During Programmatic Replay in a Virtual Machine.	USA	12/826,435	06/29/2010
Ensuring Deterministic Thread Context Switching in Virtual Machine Applications.	USA	12/825,932	06/29/2010
Recording and Replaying Computer Program Execution with Recorded Execution Event Breakpoints.	USA	12/890,449	09/24/2010
State Synchronization in Recording and Replaying Computer Programs.	USA	11/449,156	06/07/2006
Thread Management to Prevent Race Conditions in Computer Programs.	USA	11/449158	06/07/2006

**CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT**

State of California

County of SANTA CLARAOn JUNE 5, 2012 before me, CHUCK C. KIM, NOTARY PUBLICpersonally appeared LARRY LUNETTA

Here Insert Name and Title of the Officer

Name(s) of Signer(s)



who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

Chuck Kim

Signature of Notary Public

Place Notary Seal Above

**OPTIONAL**

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

**Description of Attached Document**Title or Type of Document: Patent AssignmentDocument Date: June 5, 2012Number of Pages: 3 pages (incl. attachments)

Signer(s) Other Than Named Above: \_\_\_\_\_

**Capacity(ies) Claimed by Signer(s)**Signer's Name: Larry Lunetta

- ☐ Individual  
☒ Corporate Officer — Title(s): CEO  
☐ Partner — ☐ Limited ☐ General  
☐ Attorney in Fact  
☐ Trustee  
☐ Guardian or Conservator  
☐ Other: \_\_\_\_\_

Signer is Representing: \_\_\_\_\_

Rapier Solutions, Inc.

Signer's Name: \_\_\_\_\_

- ☐ Individual  
☐ Corporate Officer — Title(s): \_\_\_\_\_  
☐ Partner — ☐ Limited ☐ General  
☐ Attorney in Fact  
☐ Trustee  
☐ Guardian or Conservator  
☐ Other: \_\_\_\_\_

Signer is Representing: \_\_\_\_\_

