505395283 03/26/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5442077

Name Execution Date SUDHIR BHOJWANI 11/03/2016 LALITHA RAJAGOPALAN 11/03/2016 ANIL MANDAVA 11/03/2016 ROBERT WELLS 11/03/2016 TANVI BAKUL SHAH 11/03/2016 MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY	SUBMISSION TYPE:		NEW ASSIGNMENT	
Name Execution Date SUDHIR BHOJWANI 11/03/2016 LALITHA RAJAGOPALAN 11/03/2016 ANIL MANDAVA 11/03/2016 ROBERT WELLS 11/03/2016 TANVI BAKUL SHAH 11/03/2016 MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA 11/03/2016 Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type	NATURE OF CONVEYANCE:		ASSIGNMENT	
SUDHIR BHOJWANI 11/03/2016 LALITHA RAJAGOPALAN 11/03/2016 ANIL MANDAVA 11/03/2016 ROBERT WELLS 11/03/2016 TANVI BAKUL SHAH 11/03/2016 MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA RECEIVING PARTY DATA Street Address: DIETMAR-HOPP-ALLEE 16	CONVEYING PARTY	DATA		
LALITHA RAJAGOPALAN 11/03/2016 ANIL MANDAVA 11/03/2016 ROBERT WELLS 11/04/2016 TANVI BAKUL SHAH 11/03/2016 MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA RECEIVING PARTY DATA SAP SE Street Address: DIETMAR-HOPP-ALLEE 16			Name	Execution Date
ANIL MANDAVA 11/03/2016 ROBERT WELLS 11/04/2016 TANVI BAKUL SHAH 11/03/2016 MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	SUDHIR BHOJWANI			11/03/2016
ROBERT WELLS 11/04/2016 TANVI BAKUL SHAH 11/03/2016 MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	LALITHA RAJAGOPA	LAN		11/03/2016
TANVI BAKUL SHAH 11/03/2016 MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE	ANIL MANDAVA			11/03/2016
MARIA ELENA GAMMON 11/29/2016 PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE	ROBERT WELLS			11/04/2016
PRASHANT BHAGAT 11/03/2016 STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	TANVI BAKUL SHAH			11/03/2016
STEVEN WEIGAND 11/29/2016 YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	MARIA ELENA GAMM	ION		11/29/2016
YUAN TUNG 11/03/2016 GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	PRASHANT BHAGAT			11/03/2016
GOPALAKRISHNAN SUNDARAM 02/03/2019 RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190	STEVEN WEIGAND			11/29/2016
RECEIVING PARTY DATA Name: SAP SE Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	YUAN TUNG			11/03/2016
Name:SAP SEStreet Address:DIETMAR-HOPP-ALLEE 16City:WALLDORFState/Country:GERMANYPostal Code:69190PROPERTY NUMBERS Total: 1Property TypeNumber	GOPALAKRISHNAN SUNDARAM			02/03/2019
State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type	Street Address:		HOPP-ALLEE 16	
Street Address: DIETMAR-HOPP-ALLEE 16 City: WALLDORF State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	RECEIVING PARTY	ΟΑΤΑ		
State/Country: GERMANY Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type	Street Address:	DIETMAR-I	HOPP-ALLEE 16	
Postal Code: 69190 PROPERTY NUMBERS Total: 1 Property Type Number	City:	WALLDOR	=	
PROPERTY NUMBERS Total: 1 Property Type Number	State/Country:	GERMANY		
Property Type Number	Postal Code:	69190		
Property Type Number		PS Totol: 1		
			Number]
i		103	55004]
	Fax Number:			
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent	Phone:	•	-	
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.			eting@fountainheadlaw.com	
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. Phone: 408-244-6319				
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.Phone:408-244-6319Email:docketing@fountainheadlaw.com	Address Line 1: 900			
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.Phone:408-244-6319Email:docketing@fountainheadlaw.comCorrespondent Name:FOUNTAINHEAD LAW GROUP P.C. CHAD R. WALSAddress Line 1:900 LAFAYETTE STREET	Address Line 2:	SUI	TE 301	
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.Phone:408-244-6319Email:docketing@fountainheadlaw.comCorrespondent Name:FOUNTAINHEAD LAW GROUP P.C. CHAD R. WALSAddress Line 1:900 LAFAYETTE STREET	Address Line 4:	SAN	ITA CLARA, CALIFORNIA 95050	
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.Phone:408-244-6319Email:docketing@fountainheadlaw.comCorrespondent Name:FOUNTAINHEAD LAW GROUP P.C. CHAD R. WALSAddress Line 1:900 LAFAYETTE STREETAddress Line 2:SUITE 301	ATTORNEY DOCKET	NUMBER:	000005-056502US	
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.Phone:408-244-6319Email:docketing@fountainheadlaw.comCorrespondent Name:FOUNTAINHEAD LAW GROUP P.C. CHAD R. WALSAddress Line 1:900 LAFAYETTE STREETAddress Line 2:SUITE 301Address Line 4:SANTA CLARA, CALIFORNIA 95050				

505395283

NAME OF SUBMITTER: LAM P. DOAN		
SIGNATURE: /Lam P. Doan/		
DATE SIGNED: 03/26/2019		
Total Attachments: 5 source=5-56502-Assignment#page1.tif source=5-56502-Assignment#page2.tif source=5-56502-Assignment#page3.tif source=5-56502-Assignment#page4.tif source=5-56502-Assignment#page5.tif		

ASSIGNMENT OF PATENT APPLICATION

JOINT

WHEREAS, Sudhir Bhojwani, Lalitha Rajagopalan, Anil Mandava, Robert Wells, Tanvi Bakul Shah, Maria Elena Gammon, Prashant Bhagat, Steven Weigand, Yuan Tung and Gopalakrishnan Sundaram, hereinafter referred to as "Assignors," are the inventors of the invention described and set forth in the below-identified application for United States Letters Patent:

Title of invention:	Matrix Traversal Based on Hierarchies
Application No.:	15/336,790
Filing Date:	October 28, 2016

WHEREAS, **SAP SE**, located at Dietmar-Hopp-Allee 16, 69190 Walldorf, Germany; hereinafter referred to as "Assignee," is desirous of acquiring an interest in the invention and application and in any U.S. Letters Patent and Registrations which may be granted on the same;

For good and valuable consideration, receipt of which is hereby acknowledged by Assignors, Assignors have assigned, and by these presents do assign to Assignee all right, title and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this Assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignors further agree that they will, without charge to Assignee, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer, and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.

Assignors hereby authorize and request Fountainhead Law Group PC, 900 Lafayette St., Ste. 301, Santa Clara, CA 95050, to insert herein above the application number and filing date of said application when known.

Assignment Attorney Docket No.: 000005-056501US Page 2

IN TESTIMONY WHEREOF, Assignors have signed their names on the dates indicated.

Dated: 11/3/16

WITNESSED:

Dated: ______3

Sudhir Bhojwani Sign: Ala

Print: XXX(74

Dated:

WITNESSED: u 3110 Dated:

Lalitha Rajagopalan

Sign:_ Print: VAXX((

1) Dated:

WITNESSED: Dated:____(\] 3]\\b

N

Anil Mandava

Sign: MA Print:

Assignment Attorney Docket No.: 000005-056501US Page 3

Dated: 2016 - //

WITNESSED:

Dated: 14/16

rell **Robert Wells** Sign: Ma Warren Print:

Dated: 11 3 2016

WITNESSED: Dated: 113116

Dated: 11/29/2014

WITNESSED:

Dated:_____

Jumi Anah Mar Tanvi Bakul Shah Sign: Wax WPrint: Waller MA

Maria Elena Gammon

Sign:_____ Print: _____

Dated: 11-03-2016

WITNESSED: Dated: 11 3 16

MXKm X Prashant Bhagat Sign: Warden W Print: Wallen Ma

Assignment Astorney Docket No.: 000005-056501US Page 4

Darred: 1//29/16

WITNESSED:

Dated:____

Steven Weigand

Sign: _ Princ _

Dated: 1/03/16

WITNESSED:

3116 Dated:

Yuan Tung Sign: [n]WALLEA Print:

Dated:__

Gopalakrishnan Sundaram

WITNESSED:

Dated:__

Sign: ____

Print:



Assignment Attorney Docket No.: 000005-05850105 Page 4	
Dated:	Steven Weigand
WITNESSED:	
Dated:	Sign:
	Print:
Dated:	Yuan Tung
WITNESSED:	, in the second s
Dated	Sign:
	Print:
Dated: 21/03/2-19	Gopitakristinan Sundaram
WITNESSED.	
Dated:	Sign:
	Print:

RECORDED: 03/26/2019