505573283 07/16/2019

EPAS ID: PAT5620081

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

SUBMISSION TYPE: NEW ASSIGNMENT NATURE OF CONVEYANCE: ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ANH TRUONG	06/28/2019
VINCENT PHAM	06/28/2019
GALEN RAFFERTY	06/28/2019
JEREMY GOODSITT	07/01/2019
MARK WATSON	07/16/2019
AUSTIN WALTERS	06/28/2019

RECEIVING PARTY DATA

Name:	CAPITAL ONE SERVICES, LLC
Street Address:	1680 CAPITAL ONE DRIVE
City:	MCLEAN
State/Country:	VIRGINIA
Postal Code:	22102

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16506711

CORRESPONDENCE DATA

Fax Number: (202)824-3001

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: (202) 824-3000

bwptopat@bannerwitcoff.com, eanthony@bannerwitcoff.com Email:

BANNER & WITCOFF, LTD. **Correspondent Name:**

Address Line 1: 1100 13TH ST. NW

Address Line 2: STE 1200

Address Line 4: WASHINGTON, D.C. 20005

ATTORNEY DOCKET NUMBER: 009033.00013 **ERICA LAUREN ANTHONY** NAME OF SUBMITTER: **SIGNATURE:** /Erica Lauren Anthony/ DATE SIGNED: 07/16/2019

Total Attachments: 6	
source=00013 Declarations _ Assignments-1#page1.tif	
source=00013 Declarations _ Assignments-1#page2.tif	
source=00013 Declarations _ Assignments-1#page3.tif	
source=00013 Declarations _ Assignments-1#page4.tif	
source=00013 Declarations _ Assignments-1#page5.tif	
source=00013 Declarations _ Assignments-1#page6.tif	

COMBINED PATENT DECLARATION AND ASSIGNMENT

TITLE OF INVENTION:	GENERATING A CHALLENGE-RESPONSE FOR AUTHENTICATION USING RELATIONS AMONG OBJECTS	
	DECLARATION	
As the below named in	ventor, I hereby declare that:	
 This declaration is directed to: 	☐ The attached application, or	
	United States application or PCT international application number	
I believe thatI hereby acknowledge	ntified application was made or authorized to be made by me. am the original inventor or an original joint inventor of a claimed invention in the application. whedge that any willful false statement made in this declaration is punishable under 18 U.S.C. r imprisonment of not more than five (5) years, or both.	
	ASSIGNMENT	
WHEREAS, I, the below application number an	named Inventor/Assignor, have invented the above invention, having the following diling date:	
U.S. A	oplication No, filed	
	ank, I hereby authorize the attorneys for Assignee to insert the filing date and application pove after they become known and prior to recording this document.	
WHEREAS, Capital One Services, LLC ("Assignee"), a Corporation having offices and a place of business at 1680 Capital One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto:		
NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions.		
I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment.		
I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.		
INVENTOR/ASSIGN	OR:	
Legal Name:	Jeremy Goodsitt	
	apital One Services, LLC 1680 Capital One Drive, McLean, Virginia 22102	
	Deveny Goodsitt 7/1/2019 Date:	

COMBINED PATENT DECLARATION AND ASSIGNMENT

TITLE OF INVENTION:	GENERATING A CHALLENGE-RESPONSE FOR AUTHENTICATION USING RELATIONS AMONG OBJECTS	
	DECLARATION	
	rentor, I hereby declare that:	
 This declaration is directed to: 	☐ The attached application, or	
	United States application or PCT international application number	
I believe that II hereby ackno	ntified application was made or authorized to be made by me. am the original inventor or an original joint inventor of a claimed invention in the application. wledge that any willful false statement made in this declaration is punishable under 18 U.S.C. imprisonment of not more than five (5) years, or both.	
	ASSIGNMENT	
WHEREAS, I, the below application number and	named Inventor/Assignor, have invented the above invention, having the following filing date:	
U.S. Ap	plication No, filed	
	ank, I hereby authorize the attorneys for Assignee to insert the filing date and application love after they become known and prior to recording this document.	
WHEREAS, Capital One Services, LLC ("Assignee"), a Corporation having offices and a place of business at 1680 Capital One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto:		
NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions.		
I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment.		
I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.		
INVENTOR/ASSIGN	OR:	
Legal Name:	Vincent Pham	
	apital One Services, LLC 1680 Capital One Drive, McLean, Virginia 22102	
Signature:	Vincent Plan Date: 6/28/2019	

COMBINED PATENT DECLARATION AND ASSIGNMENT

TITLE OF INVENTION	GENERATING OBJECTS	A CHALLENGE-RESPONSE FOR AUTHENTICATION USING RELATIONS AMONG
	•	DECLARATION
As the below named	l inventor, I hereby	declare that:
 This declaration directed to: 		The attached application, or
		United States application or PCT international application number
I believe theI hereby act	at I am the origina knowledge that an	on was made or authorized to be made by me. inventor or an original joint inventor of a claimed invention in the application. y willful false statement made in this declaration is punishable under 18 U.S.C. of not more than five (5) years, or both.
		ASSIGNMENT
WHEREAS, I, the bel application number		or/Assignor, have invented the above invention, having the following
U.S.	Application No	, filed
If the above lines are	e blank, I hereby a	uthorize the attorneys for Assignee to insert the filing date and application become known and prior to recording this document.
WHEREAS, Capital One Services, LLC ("Assignee"), a Corporation having offices and a place of business at 1680 Capital One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto:		
NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions.		
I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment.		
I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.		
INVENTOR/ASSI	GNOR:	
Legal Name:	Galen Raff	erty
Address: c/o Capital One Services, LLC 1680 Capital One Drive, McLean, Virginia 22102		
	Galen Rafferty	6/28/2019
Signature:	0074CD04EE06447	Date:

COMBINED PATENT DECLARATION AND ASSIGNMENT

PECLARATION As the below named inventor, I hereby declare that: • This declaration is ☑ The attached application, or directed to: ☐ United States application or PCT international application number ☐ Infect on ☐ United States application or PCT international application number ☐ Infect on	TITLE OF INVENTION:	GENERATING A CHALLENGE-RESPONSE FOR AUTHENTICATION USING RELATIONS AMONG OBJECTS	
the attached application, or directed to: United States application or PCT international application number filed on		DECLARATION	
declaration is directed to: United States application or PCT international application number filed on	As the below named inv	ventor, I hereby declare that:	
number	declaration is	☐ The attached application, or	
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. ASSIGNMENT WHEREAS, I, the below named Inventor/Assignor, have invented the above invention, having the following application number and filing date: U.S. Application No			
WHEREAS, I, the below named Inventor/Assignor, have invented the above invention, having the following application number and filing date: U.S. Application No	I believe that II hereby ackno	am the original inventor or an original joint inventor of a claimed invention in the application. wledge that any willful false statement made in this declaration is punishable under 18 U.S.C.	
application number and filing date: U.S. Application No		ASSIGNMENT	
If the above lines are blank, I hereby authorize the attorneys for Assignee to insert the filing date and application number immediately above after they become known and prior to recording this document. WHEREAS, Capital One Services, LLC ("Assignee"), a Corporation having offices and a place of business at 1680 Capital One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto: NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title	• •		
number immediately above after they become known and prior to recording this document. WHEREAS, Capital One Services, LLC ("Assignee"), a Corporation having offices and a place of business at 1680 Capital One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto: NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provis	U.S. Ap	pplication No, filed	
One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto: NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to			
salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enfor	One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in		
issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries. INVENTOR/ASSIGNOR: Legal Name: Anh Truong Address: C/o Capital Quar, Services, LLC 1680 Capital One Drive, McLean, Virginia 22102 ANH TRUDHG1 6/28/2019	salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make,		
successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries. INVENTOR/ASSIGNOR: Legal Name: Anh Truong Address: C/o Capital One: Services, LLC 1680 Capital One Drive, McLean, Virginia 22102 ALL TRUONG 6/28/2019	issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and		
Legal Name: Anh Truong Address: c/o Capital One Services, LLC 1680 Capital One Drive, McLean, Virginia 22102 ANA TRUONG 6/28/2019	successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent		
Legal Name: Anh Truong Address: c/o Capital One Services, LLC 1680 Capital One Drive, McLean, Virginia 22102 ANA TRUONG 6/28/2019	INVENTOR/ASSIGN	OR:	
Address: c/o Capital Que Services, LLC 1680 Capital One Drive, McLean, Virginia 22102			
ANA TOUDNET 6/28/2019			
	-	ANA TOUDNG 6/28/2019	

COMBINED PATENT DECLARATION AND ASSIGNMENT

TITLE OF INVENTION:	GENERATING A CHALLENGE-RESPONSE FOR AUTHENTICATION USING RELATIONS AMONG OBJECTS	
	DECLARATION	
	entor, I hereby declare that:	
 This declaration is directed to: 	⊠ The attached application, or	
	United States application or PCT international application number	
I believe that II hereby acknowledge	tified application was made or authorized to be made by me. am the original inventor or an original joint inventor of a claimed invention in the application. wledge that any willful false statement made in this declaration is punishable under 18 U.S.C. imprisonment of not more than five (5) years, or both.	
	ASSIGNMENT	
WHEREAS, I, the below application number and	named Inventor/Assignor, have invented the above invention, having the following filing date:	
U.S. Ap	plication No filed	
If the above lines are bla	nk, I hereby authorize the attorneys for Assignee to insert the filing date and application ove after they become known and prior to recording this document.	
One Drive, McLean, Virg	Services, LLC ("Assignee"), a Corporation having offices and a place of business at 1680 Capital inia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid all applications and Letters Patent therefor granted in the United States of America, and in eign thereto:	
NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions.		
I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment.		
I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.		
INVENTOR/ASSIGN	OR:	
Legal Name:	Austin Walters	
-	pital വരെ Services, LLC 1680 Capital One Drive, McLean, Virginia 22102	
	dustin Walters 6/28/2019	
Signature:	Date:	

COMBINED PATENT DECLARATION AND ASSIGNMENT

TITLE OF INVENTION:	GENERATING A CHALLENGE-RESPONSE FOR AUTHENTICATION USING RELATIONS AMONG OBJECTS	
	DECLARATION	
	rentor, I hereby declare that:	
 This declaration is directed to: 	☐ The attached application, or	
	United States application or PCT international application number	
I believe that I :I hereby acknowledge	ntified application was made or authorized to be made by me. am the original inventor or an original joint inventor of a claimed invention in the application. wledge that any willful false statement made in this declaration is punishable under 18 U.S.C. imprisonment of not more than five (5) years, or both.	
	ASSIGNMENT	
application number and	-	
U.S. Ap	plication No filed	
	ank, I hereby authorize the attorneys for Assignee to insert the filing date and application love after they become known and prior to recording this document.	
WHEREAS, Capital One Services, LLC ("Assignee"), a Corporation having offices and a place of business at 1680 Capital One Drive, McLean, Virginia 22102, is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto:		
NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary and/or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions.		
I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment.		
I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.		
INVENTOR/ASSIGNOR:		
Legal Name: Mark Watson Address: c/o Capital One Services, LLC 1680 Capital One Drive, McLean, Virginia 22102		
Address. C/O Ca	DocuSigned by:	
Signature:	Mark Watson Date: 7/16/2019	
	20932D64C8B84B6	

PATENT REEL: 049764 FRAME: 0084

RECORDED: 07/16/2019