

## PATENT ASSIGNMENT COVER SHEET

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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>
THINGWORX, INC.	03/10/2014
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	PTC INC.
<b>Street Address:</b>	140 KENDRICK STREET
<b>City:</b>	NEEDHAM
<b>State/Country:</b>	MASSACHUSETTS
<b>Postal Code:</b>	02494
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15405946
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<b>ATTORNEY DOCKET NUMBER:</b>	10758-015US3
<b>NAME OF SUBMITTER:</b>	T. PAUL TANPITKUPONGSE
<b>SIGNATURE:</b>	/T. Paul Tanpitkupongse/
<b>DATE SIGNED:</b>	09/21/2017
<b>Total Attachments: 5</b>	
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## PATENT ASSIGNMENT

WHEREAS, **THINGWORX, INC.** (hereinafter "ASSIGNOR"), a corporation organized and existing under the laws of the State of Delaware, and having a usual place of business at 350 Eagleview Boulevard, Suite 150, Exton, PA 19341, desires to transfer right, title, and interest in the patents and patent applications identified below (hereinafter "PATENTS"):

1. **United States Patent No. 5,734,966, titled "WIRELESS COMMUNICATION SYSTEM FOR ADAPTING TO FREQUENCY DRIFT," filed in the United States Patent and Trademark Office on January 20, 1995 as United States Patent Application Serial No. 08/376,109; and**
2. **United States Patent No. 5,914,672, titled "SYSTEM FOR FIELD INSTALLATION OF A REMOTE METER INTERFACE," filed in the United States Patent and Trademark Office on June 13, 1997 as United States Patent Application Serial No. 08/874,684; and**
3. **United States Patent No. 5,909,640, titled "WIRELESS COMMUNICATION SYSTEM FOR ADAPTING TO FREQUENCY DRIFT," filed in the United States Patent and Trademark Office on October 6, 1997 as United States Patent Application Serial No. 08/944,832; and**
4. **United States Patent No. 7,583,189, titled "METHODS FOR MANAGING REMOTE DEVICES OVER AN INSTANT MESSAGING NETWORK AND SYSTEMS THEREOF," filed in the United States Patent and Trademark Office on March 20, 2007 as United States Patent Application Serial No. 11/726,006; and**
5. **United States Provisional Patent Application Serial No. 60/919,003, titled "METHODS FOR AUDITING PEER-TO-PEER COMMUNICATIONS IN REMOTE DEVICE MONITORING SYSTEM AND SYSTEMS THEREOF," filed in the United States Patent and Trademark Office on March 23, 2007; and**
6. **International Patent Application No. PCT/US2008/057511, titled "METHODS FOR MANAGING REMOTE DEVICES OVER AN INSTANT MESSAGING NETWORK AND SYSTEMS THEREOF," filed on March 19, 2008; and**
7. **United States Patent Application Serial No. 12/077,625, titled "METHODS FOR AUDITING PEER-TO-PEER COMMUNICATIONS IN REMOTE DEVICE MONITORING SYSTEM AND SYSTEMS THEREOF," filed in the United States Patent and Trademark Office on March 20, 2008; and**

8. **United States Provisional Patent Application Serial No. 61/560,390, titled “METHOD FOR ANALYZING TIME SERIES ACTIVITY STREAMS AND DEVICES THEREOF,” filed in the United States Patent and Trademark Office on November 16, 2011; and**
9. **United States Provisional Patent Application Serial No. 61/560,371, titled “METHODS FOR DYNAMICALLY GENERATING AN APPLICATION INTERFACE FOR A MODELED ENTITY AND DEVICES THEREOF,” filed in the United States Patent and Trademark Office on November 16, 2011; and**
10. **United States Provisional Patent Application Serial No. 61/560,369, titled “METHODS FOR INTEGRATING SEMANTIC SEARCH, QUERY, AND ANALYSIS ACROSS HETEROGENEOUS DATA TYPES AND DEVICES THEREOF,” filed in the United States Patent and Trademark Office on November 16, 2011; and**
11. **United States Patent Application Serial No. 13/678,809, titled “METHOD FOR ANALYZING TIME SERIES ACTIVITY STREAMS AND DEVICES THEREOF,” filed in the United States Patent and Trademark Office on November 16, 2012; and**
12. **United States Patent Application Serial No. 13/678,885, titled “METHODS FOR DYNAMICALLY GENERATING AN APPLICATION INTERFACE FOR A MODELED ENTITY AND DEVICES THEREOF,” filed in the United States Patent and Trademark Office on November 16, 2012; and**
13. **United States Patent Application Serial No. 13/679,361, titled “METHODS FOR INTEGRATING SEMANTIC SEARCH, QUERY, AND ANALYSIS ACROSS HETEROGENEOUS DATA TYPES AND DEVICES THEREOF,” filed in the United States Patent and Trademark Office on November 16, 2012; and**
14. **United States Provisional Patent Application Serial No. 61/793,627, titled “METHODS FOR MANAGING APPLICATIONS USING SEMANTIC MODELING AND TAGGING AND DEVICES THEREOF,” filed in the United States Patent and Trademark Office on March 15, 2013.**

WHEREAS, PTC INC. (hereinafter “ASSIGNEE”), a corporation organized and existing under the laws of the Commonwealth of Massachusetts, and having a usual place of business at 140 Kendrick Street, Needham, MA 02494, desires to acquire, or confirm a transfer of, the entire right, title, and interest in the PATENTS;

WHEREAS, ASSIGNEE has acquired the ASSIGNOR as confirmed by the Agreement and Plan of Merger, dated as of December 30, 2013, by and among ASSIGNEE, ASSIGNOR, Tetric, Inc., and the other parties set forth on the signature pages thereto;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, ASSIGNOR hereby assigns and transfers, or confirms that it has assigned and transferred, unto ASSIGNEE, its successors, assigns, and legal representatives, ASSIGNOR's entire right, title and interest, in and throughout the United States of America, its territories and all foreign countries, in and to the inventions described and/or claimed in the PATENTS and such other patents as may issue thereon or claim priority under United States law or international convention, including but not limited to provisional, non-provisionals, continuations, continuations-in-part, divisionals, reissues, reexaminations, extensions, and substitutions of said patents and patent applications, and any right, title and interest ASSIGNOR may have in provisional applications to which the above-identified patent application claims priority; said inventions, applications and patents to be held and enjoyed by ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said patents may be granted as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made; ASSIGNOR hereby conveys all of its rights arising under or pursuant to any and all United States laws and international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for patent, including but not limited to any cause(s) of action and damages accruing prior to this assignment; ASSIGNOR hereby acknowledges that this assignment, being of its entire right, title and interest in and to said inventions, applications and patents, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all patents by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all patents to ASSIGNEE in its own name as assignee of ASSIGNOR's entire right, title and interest therein;

AND, ASSIGNOR hereby further agrees for itself and its successors, assigns, agents, and legal representatives: to provide statements or testimony in any interference or other proceeding in which said inventions or any application or patent directed thereto may be involved; to communicate to ASSIGNEE, its successors, assigns, and legal representatives, any facts known to ASSIGNOR regarding said inventions, and to testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid inventions to ASSIGNEE, its successors, assigns, and legal representatives, including the execution of non-provisional, substitution, continuation, divisional, reissue, reexamination, or corresponding foreign or international patent applications; and generally do everything possible to aid ASSIGNEE, its successors, assigns and legal representatives, to obtain, record and enforce full protection for the inventions in all countries, but in each instance at ASSIGNEE's reasonable expense;

AND, ASSIGNOR does hereby authorize and request the Director of the United States Patent and Trademark Office and any officials of any country or countries other than the United States, whose duty it is to issue patents or other forms of industrial property protection, to issue the same as shall be granted upon any application relating to the above-identified patent applications to ASSIGNEE, its successors, assigns, or legal representatives;

AND, ASSIGNOR hereby covenants and agrees that it has full right to convey the entire right, title, and interest assigned, and it has not executed and will not execute any agreement in conflict herewith;

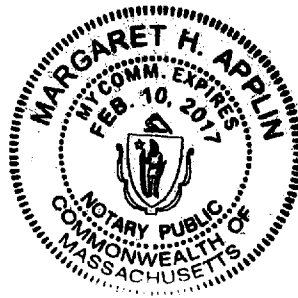
**IN TESTIMONY WHEREOF**, ASSIGNOR and ASSIGNEE by their duly authorized representatives acting on their own free will have caused this instrument to be duly executed and have hereunto set our hands and affixed our seals on the dates set forth below.

**THINGWORX, INC.**

By: *Stephen G. Bouchard*  
Name: Stephen G. Bouchard  
Title: Treasurer

**Commonwealth of Massachusetts )**  
**County of Norfolk ) ss**

Subscribed and sworn to before me, by the above-named Stephen G. Bouchard this 10<sup>th</sup> day of March, 2014. The above-named Stephen G. Bouchard is duly authorized to execute this instrument on behalf of **THINGWORX, INC.**



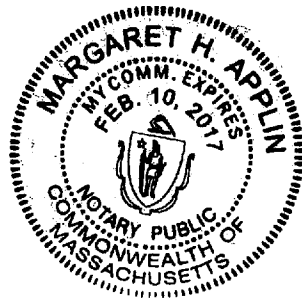
*Margaret H. Applin*  
Notary Public  
My Commission Expires: *February 10, 2017*

**PTC INC.**

By: *Aaron C. von Staats*  
Name: Aaron C. von Staats  
Title: Secretary

**Commonwealth of Massachusetts )**  
**County of Norfolk ) ss**

Subscribed and sworn to before me, by the above-named Aaron C. von Staats this 10th day of March, 2014. The above-named Aaron C. von Staats is duly authorized to execute this instrument on behalf of **PTC INC.**



*Margaret H. Applin*  
Notary Public  
My Commission Expires: *February 10, 2017*