

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT8066374

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
SHANDAN ZHOU	06/11/2020
SAURABH AGARWAL	06/11/2020
KARTHIKEYAN SUBRAMANIAN	06/11/2020
THOMAS MOSCIBRODA	06/11/2020
PAUL NAVEEN SELVARAJ	06/11/2020
SANDEEP RAMJI	10/02/2020
SORIN IFTIMIE	06/11/2020
NISARG SHETH	06/11/2020
WANGHAI GU	06/11/2020
AJAY MANI	06/11/2020
SI QIN	06/09/2020
YONG XU	06/12/2020
QINGWEI LIN	06/12/2020
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	MICROSOFT TECHNOLOGY LICENSING, LLC
<b>Street Address:</b>	ONE MICROSOFT WAY
<b>City:</b>	REDMOND
<b>State/Country:</b>	WASHINGTON
<b>Postal Code:</b>	98052
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	18355033
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(801)532-7543
<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>	8015321500
<b>Email:</b>	mspatent@rqn.com, usdocket1@microsoft.com
<b>Correspondent Name:</b>	RAY QUINNEY & NEBEKER - MICROSOFT
<b>Address Line 1:</b>	36 SOUTH STATE STREET

PATENT

<b>Address Line 2:</b>	SUITE 1400
<b>Address Line 4:</b>	SALT LAKE CITY, UTAH 84111

<b>ATTORNEY DOCKET NUMBER:</b>	408478-US-CNT
--------------------------------	---------------

<b>NAME OF SUBMITTER:</b>	JAMES S. BULLOUGH
---------------------------	-------------------

<b>SIGNATURE:</b>	/James S. Bullough/
-------------------	---------------------

<b>DATE SIGNED:</b>	07/19/2023
---------------------	------------

**Total Attachments: 26**

source=408478-US-CNT\_2023-07-19\_Assignment#page1.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page2.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page3.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page4.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page5.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page6.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page7.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page8.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page9.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page10.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page11.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page12.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page13.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page14.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page15.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page16.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page17.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page18.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page19.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page20.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page21.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page22.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page23.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page24.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page25.tif  
source=408478-US-CNT\_2023-07-19\_Assignment#page26.tif

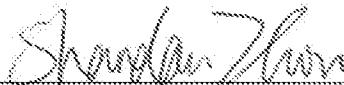
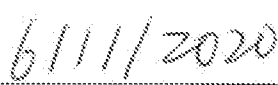
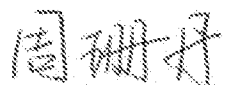
☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US – United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns (“ASSIGNEE”), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries (“APPLICATION DERIVATIVES”));

[illegible]


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

	
Inventor's Signature	Date
Shandan ZHOU	
Printed Name in English	Printed Name in Native Language (if other than English)

MS Docket No.: 408478-US-NP

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

[illegible]


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

<u>Saurabh</u>	<u>06/11/2020</u>
Inventor's Signature	Date
<u>Saurabh AGARWAL</u>	<u>SAURABH AGARWAL</u>
Printed Name in English	Printed Name in Native Language (if other than English)

I Karthikeyan SUBRAMANIAN ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PREDICTING EXPANSION FAILURES AND DEFRAGMENTING CLUSTER RESOURCES" ("APPLICATION"), which:

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

☐ was filed on \_\_\_\_\_ and was given Application No. \_\_\_\_\_ by the following Office  
"\_\_\_\_\_";

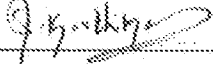
Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known:

Application No.	Filing Date	Office
18/355,033	July 19, 2023	USPTO


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

 _____ Inventor's Signature	<u>6/11/2020</u> _____ Date
<u>Karthikeyan SUBRAMANIAN</u> _____ Printed Name in English	_____ Printed Name in Native Language (if other than English)



I Thomas MOSCIBRODA ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PREDICTING EXPANSION FAILURES AND DEFRAGMENTING CLUSTER RESOURCES" ("APPLICATION"), which:

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

☐ was filed on \_\_\_\_\_ and was given Application No. \_\_\_\_\_ by the following Office  
" \_\_\_\_\_ ";

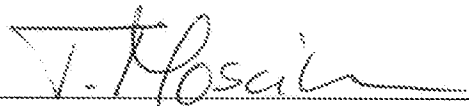
Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known;

Application No.	Filing Date	Office
18/355,033	July 19, 2023	USPTO


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

	<u>6/11/2020</u>
Inventor's Signature	Date
<u>Thomas MOSCIBRODA</u>	
Printed Name in English	Printed Name in Native Language (if other than English)

I Paul Naveen SELVARAJ ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PREDICTING EXPANSION FAILURES AND DEFRAGMENTING CLUSTER RESOURCES" ("APPLICATION"), which:

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

☐ was filed on \_\_\_\_\_ and was given Application No. \_\_\_\_\_ by the following Office  
"\_\_\_\_\_";

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known:

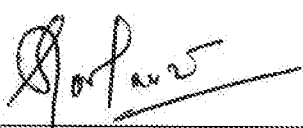
Application No.	Filing Date	Office
18/355,033	July 19, 2023	USPTO

## PATENT ASSIGNMENT

MS Docket No.: 408478-US-NP


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

	<u>06/11/2020</u>
Inventor's Signature	Date
<u>Paul Naveen SELVARAJ</u>	
Printed Name in English	Printed Name in Native Language (If other than English)

I Sandeep RAMJI ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PREDICTING EXPANSION FAILURES AND DEFRAGMENTING CLUSTER RESOURCES" ("APPLICATION"), which:

☐ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on and given Application

No. \_\_\_\_\_ by the following Office US – United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

☒ was filed on June 12, 2020 and was given Application No 16/900,730 by the following Office "US – United States Patent and Trademark Office";

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known;

Application No.	Filing Date	Office
18/355,033	July 19, 2023	USPTO


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

<u>Sandeep Ramji</u>	<u>10/2/2020</u>
Inventor's Signature	Date
<u>Sandeep RAMJI</u>	<u></u>
Printed Name in English	Printed Name in Native Language (if other than English)

MS Docket No.: 408478-US-NP

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));


[illegible]

## PATENT ASSIGNMENT

MS Docket No.: 408478-US-NP


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

 _____ Inventor's Signature	<u>06/11/2020</u> _____ Date
<u>Sorin IFTIMIE</u> _____ Printed Name in English	<u>SORIN IFTIMIE</u> _____ Printed Name in Native Language (if other than English)



I Nisarg SHETH ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PREDICTING EXPANSION FAILURES AND DEFRAGMENTING CLUSTER RESOURCES" ("APPLICATION"), which:

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

☐ was filed on \_\_\_\_\_ and was given Application No. \_\_\_\_\_ by the following Office "\_\_\_\_\_",

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known;

Application No.	Filing Date	Office
18/355,033	July 19, 2023	USPTO


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

<u>Sheth N.T.</u>	<u>06/11/2020</u>
Inventor's Signature	Date
<u>Nisarg SHETH</u>	<u></u>
Printed Name in English	Printed Name in Native Language (if other than English)

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US – United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

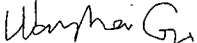
Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns (“ASSIGNEE”), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries (“APPLICATION DERIVATIVES”));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known;

[illegible]


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));


ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

	06/11/2020
Inventor's Signature	Date
Wanghai GU	顾汪海
Printed Name in English	Printed Name in Native Language (if other than English)




For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

	<u>June 11, 2020</u>
Inventor's Signature	Date
<u>Ajay MANI</u>	
Printed Name in English	Printed Name in Native Language (if other than English)

## MS Docket No.: 408478-US-NP

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known:



Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES")):

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known:

[illegible]


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

 _____ Inventor's Signature	<u>06/09/20</u> _____ Date
Si QIN _____ Printed Name in English	 _____ Printed Name in Native Language (if other than English)



☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US – United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns (“ASSIGNEE”), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries (“APPLICATION DERIVATIVES”));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known;

[illegible]


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

<u>Yong Xu</u>	<u>June 12, 2020</u>
Inventor's Signature	Date
<u>Yong XU</u>	<u>徐勇</u>
Printed Name in English	Printed Name in Native Language (if other than English)

## PATENT ASSIGNMENT

MS Docket No.: 408478-US-NP

I Qingwei LIN ("ASSIGNOR") am the original inventor or an original joint inventor of subject matter ("INVENTION") disclosed and/or claimed in a patent application entitled "PREDICTING EXPANSION FAILURES AND DEFRAGMENTING CLUSTER RESOURCES" ("APPLICATION"), which:

☒ will be filed. ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S legal representative, Microsoft Technology Licensing, LLC, One Microsoft Way, Redmond, Washington 98052 (ASSIGNEE'S LEGAL REPRESENTATIVES), to insert here in parentheses (filed on June 12, 2020 and given Application No. 16/900,730 by the following Office US - United States Patent and Trademark Office) this APPLICATION's Application No., filing date, and Office, when known;

☐ was filed on \_\_\_\_\_ and was given Application No. \_\_\_\_\_ by the following Office  
" \_\_\_\_\_ ";

Microsoft Technology Licensing, LLC, a Washington limited liability company, on behalf of itself and its successors and assigns ("ASSIGNEE"), is entitled to, and is desirous of acquiring, the entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR hereby authorizes, and requests, ASSIGNEE'S LEGAL REPRESENTATIVES to insert the Application No., filing date, and Office into the following table for any APPLICATION DERIVATIVES after they are known;

Application No.	Filing Date	Office
18/355,033	July 19, 2023	USPTO

## PATENT ASSIGNMENT

MS Docket No.: 408478-US-NP


For good and valuable consideration, the receipt of which is hereby acknowledged by the ASSIGNOR, the ASSIGNOR hereby sells, assigns and transfers to the ASSIGNEE, ASSIGNOR's entire and exclusive rights, title and interest, including the right of priority, in the INVENTION and the APPLICATION (and all other applications and patents derived therefrom, such as continuing applications, in whole or in part, in and for the United States, its territories, and all foreign countries ("APPLICATION DERIVATIVES"));

ASSIGNOR agrees to execute all instruments and documents required for the making and prosecution of the APPLICATION (and APPLICATION DERIVATIVES), for litigation regarding letters patent derived therefrom, and for the purpose of protecting and perfecting title to the APPLICATION (and APPLICATION DERIVATIVES).

<u>Qingwei Lin</u>	<u>6/12/2020</u>
Inventor's Signature	Date
<u>Qingwei LIN</u>	<u>林庆维</u>
Printed Name in English	Printed Name in Native Language (if other than English)