## CONTAINS PROTECTIVE ORDER MATERIAL

I, Edward Balassanian, hereby testify as follows:

1. I have personal knowledge of the facts stated herein.
2. I am the founder, member, and manager Implicit, LLC ("Implicit"), the Patent Owner in these proceedings, IPR2018-00766 and IPR2018-00767.
3. Implicit owns the two patents at issue in these proceedings, U.S. Patent Nos. 7,391,791 ("the '791 Patent") and 8,942,252 ("the '252 Patent") (collectively, "the Patents"). My understanding is that these proceedings involve claims $1-3,6-9,12,16,19$, and $23-25$ of the ' 791 Patent and claims $1-3,8,11$, and 17 of the ' 252 Patent (collectively, "the Claims").
4. I am also the founder and owner of the predecessors-in-interest to Implicit, specifically BeComm Corp. ("BeComm"), Implicit Networks, Inc. ("Implicit Networks"), and Digbee Media Corporation ("Digbee"). I served as the President and Chief Executive Officer of BeComm, Implicit Networks, and Digbee.
5. The inventions of the Patents were initially owned by BeComm. BeComm changed its name to Implicit Networks in 2003. Implicit Networks changed its name to Digbee in 2006. Digbee then changed its name back to Implicit Networks in 2007. Implicit Networks then assigned its assets, including the Patents, to Implicit in 2013.
6. I am the lead inventor on both of the Patents. Scott Bradley, a former BeComm Development Manager, is listed as a co-inventor on both of the Patents.

Prior to December 11, 2001, Mr. Bradley and I completed our inventions set forth in the Claims of the Patents. We originally conceived of the inventions set forth in the Claims of the Patents and they were actually reduced to practice before December 11, 2001. The evidence in support of these statements includes my testimony in this sworn declaration and the Exhibits referenced herein.
7. The conception, design, development, building, and reduction to practice of the inventions claimed in the Patents occurred in the United States. BeComm, Implicit Networks, and Digbee were headquartered in the Seattle, Washington area. Implicit has its headquarters in Texas. The acts of conceiving and actually reducing the Claims of the Patents to practice was performed in the United States. Mr. Bradley and I were located in the Seattle, Washington area when the inventions of the Patents were conceived and reduced to practice. BeComm's engineering staff were also located in the United States, mainly in the Seattle, Washington area, at the time the inventions set forth in the Claims of the Patents were conceived and reduced to practice.
8. I graduated from the University of Washington with a Bachelor's degree in Computer Science in 1989, when I was 19 years old. After graduation, I worked as an engineer at Microsoft Corp. ("Microsoft") for approximately five years. In 1995, I left Microsoft to start my own technology company. In 1996, I founded BeComm (which has since become Implicit).

## CONTAINS PROTECTIVE ORDER MATERIAL

## I. Overview of BeComm and Strings

9. My vision when I founded BeComm in 1996 was to build a new type of operating system that could allow any application or device to interact with any other application or device. I sought to re-define how computing devices operated, which required re-architecting a new operating system from the ground up.
10. I am the inventor on over 25 issued U.S. Patents that stem from my work at BeComm. Companies such as Microsoft, Apple, Google, Intel, AMD, Cisco, HP, Palo Alto Networks, and a number of other companies have licensed that patent portfolio for significant value.
11. In the traditional systems in the 1990s of the type I was familiar with, the operating system interacted with the drivers for the hardware and then, using fixed, defined pathways, relayed the data for an application to use. For example, a traditional video player would need to know the content source, video destination, and audio destination and would be bound to that hardware and that processing path.

## CONTAINS PROTECTIVE ORDER MATERIAL

12. A BeComm document described that type of traditional system in this way using a video player example:

## A Traditional Video Player



1. Application has built in knowledge of devices
2. Application features are tied together
3. Application components are not reusable in other contexts at runtime
4. Application cannot be decomposed and distributed


Exhibit 2002, at 5.
13. This approach was the conventional way systems operated at the time.

Many of the limitations were due to the design of the operating system software and architecture on those devices.
14. The BeComm operating system (initially named Portal and then released under the name Strings) was a fundamentally different architecture. It could, on-the-fly, provide a data flow from any source to any destination and provide the data in a format that the destination could consume or use.
15. The operating system accomplished that result by utilizing "beads" to process information instead of the fixed processing pathways. A "bead" was a routine or set of routines that could manipulate computer information, such as transcoding data for different media formats or transmission formats. The system worked by "stringing" together these "beads" to process data from a source to a destination.
16. This flexibility enabled communication and processing between different types of devices. Using Strings, a computing device could, for example, play audio and video that originated from a camera, also described in the same internal BeComm document from above:

## A Distributed Video Player



## Bit Pipe

BeСomm corporation ${ }^{\text {m" }}$-------- confidential
Exhibit 2002, at 9.

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