UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS

EDGE NETWORKING SYSTEMS, LLC Plaintiff, v. MICROSOFT CORPORATION, Defendant.	Civil Action No. 1:24-cv-00215-DAE

PLAINTIFF EDGE NETWORKING SYSTEMS'
OPENING CLAIM CONSTRUCTION BRIEF

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I. BACKGROUND

Plaintiff Edge Networking Systems, LLC ("Edge" or "Plaintiff") alleges that Defendant Microsoft Corp. ("Microsoft" or "Defendant") infringes multiple claims of multiple patents that share a specification: 10,686,871, 10,893,095, and 11,695,823. The Patents relate to improvements in an end-to-end network architecture that enable secure and flexible programmability across a network with lifecycle management of services and infrastructure applications.

II. CONSTRUCTION OF DISPUTED TERMS

A. "programmable network device" (871 Patent, Claims 1, 2, 4, 7, 9; 095 Patent, Claims 1, 2, 7, 15; 823 Patent, Claims 1, 2, 13, 19)

Edge's Construction	Microsoft's Construction
a network device powered by a sandboxing operating system	hardware networking equipment embedded with a sandboxing operating system

A claim term is presumed to have its plain and ordinary meaning as understood by a person of ordinary skill in the art ("POSITA") at the time of the invention in the context of the patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005); *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003). Reading the claim term "programmable network device" in light of the shared specification of the patents-in-suit makes clear that this term should be construed as Edge has suggested.

The claimed programmable network device is called fxDevice 302 in the shared specification, described as "a network device that is powered by a sandboxing operating system …" 871 Patent, 10:17-19; *see* Fig. 3.

The parties agree that a "sandboxing operating system" should be part of the construction. But Microsoft's construction suggests that the operating system must be "embedded," a word

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found nowhere in the specification. A described above, the specification indicates that the programmable network device "is ***powered by*** a sandboxing operating system…" This language is tracked in Edge's proposed construction and should be adopted by the Court.

Microsoft's construction is also problematic in that it attempts to improperly narrow the "programmable network device" by limiting it to a hardware embodiment. However, the specification is clear that *either* hardware or software may be used for various embodiments:

> In some embodiments, hard-wired circuitry or custom hardware may be used in place of, or in combination with, some or all of the software instructions that can implement the processes of various embodiments. Thus, various combinations of hardware and software may be used instead of software only to implement the embodiments.

871 Patent, 6:13-18. When it comes to the programmable network device, the claims, and the specification, do not limit the device to hardware. Considering the specification's flexibility on implementation via software, hardware, or a combination of the two, Microsoft's construction is too narrow and should be disregarded in favor of Edge's construction, with language that closely tracks the patent specification.

B. "programmable cloud device having a plurality of virtual machines" (871 Patent, Claim 9; 095 Patent, Claim 15)

Edge's Construction	Microsoft's Construction
plain and ordinary meaning, or alternatively "a cloud platform having a plurality of virtual machines"	hardware cloud equipment embedded with a plurality of virtual machines

The claimed programmable cloud device is also called a flexible cloud platform (fxCloud) 304. 871 Patent, 10:13-16; *see* Fig. 3. This is known because the Summary of the Invention describes "a flexible cloud platform ***having a plurality of virtual machines***"—the only time the phrase "plurality of virtual machines" is mentioned in the specification. Accordingly, to the extent

that the Court finds that a construction is necessary, that construction should include the phrase "cloud platform." 871 Patent, 1:36-62.

But the term "programmable cloud device having a plurality of virtual machines" does not require any construction. The plain and ordinary meaning of this term is that the "programmable cloud device" (i.e., flexible cloud platform (fxCloud) 304) has "a plurality of virtual machines," a well-known computer science term that neither party has asked this Court to construe.

The specification further describes that "each of the virtual machines has at least one fxCloudApp." 871 Patent, 10:46-49. As shown in Fig 3, the programmable cloud device, also called the flexible cloud platform (fxCloud), includes virtual machines which have at least one fxCloudApp; *see also* 871 Patent, 21:22-35 ("The fxCloud … resources … could include (as examples): … Virtual Machine master controller (usually relevant to the fxCloud).").

C. "distributed application" / "distributed applications" (871 Patent claims 1, 9; 095 Patent, claims 1, 15, 823 Patent, claims 1, 19)

Edge's Construction	Microsoft's Construction
plain and ordinary meaning or alternatively "an application formed from the secure communication between an application on the programable network device and an application on the programmable cloud device"	each "distributed application" is a single piece of software formed from components hosted on a network device and a cloud device [or a virtual machine on a cloud device]

Microsoft disputes the construction of this term while Edge has proposed that it be afforded its plain and ordinary meaning. The claim term "distributed application" is readily apparent and needs no construction especially as a POSITA would understand that term in the context of the patent. To the extent there is any reasonable dispute as to its meaning, it is an application that is

distributed between more than one of the claimed devices. The only dispute between the parties appears to be whether each "distributed application" is limited to "a single piece of software."

Microsoft's proposed construction runs contrary to claim construction rules. Claim terms are generally construed according to their plain and ordinary meaning. The two exceptions to this general rule are: "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution." *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). Neither is present here. Moreover, a well-established rule of claim construction is that the words "a" or "an" in a claim mean one or more and that even the subsequent use of definite articles like 'the" or "said" does not change this plural reading. *Baldwin Graphic Sys., Inc. v. Siebert, Inc.,* 512 F.3d 1338, 1342 (Fed. Cir. 2008). "The exceptions to this rule are extremely limited: a patentee must 'evince[ ] a clear intent' to limit 'a' or 'an' to 'one.'" *Id.*

In the context of the asserted patents, a "distributed application" is used according to its plain and ordinary meaning; the patents do not limit a "distributed application" to a single piece of software, in fact, quite the opposite is true:

> In the dSDN system, fxDeviceApp **302** *b* may have **a sister app** in the backend cloud infrastructure (i.e., flexible cloud platform **304**) referenced here as fxCloudApp **304** *a*. The fxCloudApp **304** *a* in the cloud is paired with its fxDeviceApp **302** *b* in the fxDevice **302**. **The fxCloudApp 304 *a* and the fxDeviceApp 302 *b* collectively form a distributed application** (dApp or fxApp).

871 Patent at 10:29-43; 095 at 10:25-39; 823 at 10:25-39 (emphasis added).

The term "distributed application" would also be readily understood by a POSITA without Microsoft's extraneous limitation. For instance, in 2021, IBM described a "distributed application" as follows: "Distributed application programs have multiple parts that are on different virtual

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machines. The different virtual machines can be on the same or different systems." Hecht Decl. Ex. A, IBM, https://www.ibm.com/docs/en/zvm/7.2?topic=terminology-what-are-distributed-applications, updated Dec. 17, 2021), EDGE_MSFT-00000885.

Microsoft's proposed "a single piece of software" limitation adds nothing but confusion. The term "single piece of software" has no readily understood meaning to a POSITA generally nor within the context of the patent. Such a limitation would require the finder of fact to have an understanding of what makes software a single piece versus multiple pieces or components, which is not a known concept in computer science. Modern software includes functions, classes, and packages from multiple sources. Moreover, the construction is internally inconsistent. Even Microsoft's proposed construction concedes that the claims require that the "distributed application" be formed from multiple components that are "distributed." Adding "single piece," which is found nowhere in the claim nor the specification, adds nothing but confusion.

Because Microsoft's construction is contrary to claim construction law and meets neither exception to the general rule that claim terms are to be given their plain and ordinary meaning, the Court should reject Microsoft's construction. If the claim is to be construed, Edge's construction is more appropriate because it does not include the internally inconsistent, confusing, and incorrect limitation of "a single piece of software."

D. "sandboxing operating system" (871 Patent, claims 1, 9; 095 Patent, claims 1, 15)

Edge's Construction	Microsoft's Construction
plain and ordinary meaning; alternatively, an operating system that runs each application as a dedicated process in sure isolation from other applications	software that contains a kernel, connects to hardware resources, and ensures each application runs as a dedicated process in sure isolation from the other applications

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Claim terms are construed according to their plain and ordinary meaning, with two exceptions: "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution." *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). Neither is present here for this claim term.

To start, "operating system" is a commonly used term and nothing in the specification or prosecution history provides any evidence to depart from its plain and ordinary meaning, much less justify Microsoft's unneeded construction.

The term "sandboxing" as a modifier to "operating system" reinforces this. Edge's proffered construction for "sandboxing" (to the extent one is necessary) is in agreement with Microsoft's, both of whom draw from the specification: "[t[he sandboxing operating system ensures each application runs as a dedicated process in sure isolation from the other applications." 871 Patent, 10:19-21; 095 Patent, 10:15-18. This comports with the common dictionary definition of "sandboxing," which is "[t[he restriction of a piece of software or code to a specific environment in a computer system in which it can be run securely, being able only to access (and be accessed by) certain resources, programs, files, etc." Hecht Decl. Ex. B ("sandboxing," Oxford English Dictionary, 2024). Thus, like "operating system," it is clear that the specification does not depart from the plain and ordinary meaning of "sandboxing," and accordingly there is no reason to construe the term "sandboxing operating system."

E. "application management portal" (871 Patent claims 1, 7, 9; 095 Patent, claims 1, 15, 823 Patent, claim 19)

Edge's Construction	Microsoft's Construction
portal for the network administrator (admin) to manage the lifecycle of applications	a portal for application management having a user interface

Microsoft and Edge agree that the term references a "portal," the plain and ordinary meaning of which is "an online platform (such as a website) that provides access to services or information of a specific kind." *See* Portal Definition & Meaning - Merriam-Webster, https://www.merriam-webster.com/dictionary/portal. Accordingly, a "portal" is nothing more than a general-purpose computer within the ether of the internet or cloud.

The specification states functions, i.e. services, offered by this general-purpose computer. The "application management portal" is referenced in the specification as "fxManager 306". 871 Patent, 10:13-17 ("The dSDN system 300 consists of a flexible network device (fxDevice) 302, a flexible cloud platform (fxCloud) 304, ***an application management portal (fxManager) 306,*** and an infrastructure application marketplace (fxStore) 308."). With regards to fxManger, the specification states:

> "The fxApps lifecycle is managed via fxManager 306. The fxManager 306 presents a user - friendly portal to the network administrator (admin) to discover, test prior to deployment , provision , and deprovision dApps." 871 Patent, 10:51-54.

Accordingly, the "application management portal" (i.e., "fxManager") is a general-purpose computer providing general functions (i.e., services) to manage the lifecycle of fxApps. As discussed *infra,* these functions are further specified in the claims.

Additionally, nowhere in the specification is a "user interface" mentioned in connection with the application management portal, as Microsoft suggests in its construction.

F. "infrastructure application marketplace" (823 Patent, claim 19)

Edge's Construction	Microsoft's Construction
an application repository presenting tested and certified applications	an application store with a user interface that presents distributed applications available to the administrator

The shared patent specification explicitly states that the "infrastructure application marketplace" is "(fxStore) **308**." fxStore 308 described as "fxStore **308**, which ***presents all the tested and certified vApps*** as well as showing the supported fxOS version, support hardware platforms, and other information such as reviews and number of commercial deployments by all NOIT customers." 871 Patent, 10:50-55. Edge's proposed construction includes this language regarding the presentation of tested and certified applications (also called "vApps," which are broadly defined in the specification: "the possibilities of vApps are only limited by the developers' imagination.") *Id*.

The problem with Microsoft's proposed construction is that it is confusing. It is not clear if "store" references "a source from which things may be drawn as needed" or "business establishment where usually diversified goods are kept for retail." *See e.g.* Store Definition & Meaning - Merriam-Webster, https://www.merriam-webster.com/dictionary/store (Defining "store" as "1 d: "a source from which things may be drawn as needed **:** a reserve fund" and "6: business establishment where usually diversified goods are kept for retail sale."). As neither the specification nor claims mention selling or purchasing the applications, the former is most consistent with the specification and claims.

G. "affect change" (871 Patent, claim 7)

Edge's Construction	Microsoft's Construction
effect change	effect change

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The parties agree that this term appears to be a grammatical error and should be construed as "effect change."

H. "programmable network device processing data flows hosting at least one of a plurality of first network applications" (871 Patent, claim 9; 095 Patent, claim 15)

Edge's Construction	Microsoft's Construction
No construction necessary	programmable network device for processing data flows and hosting at least one of a plurality of first network applications

Microsoft's proposed construction is nothing more than a restatement of the claim language that merely adds the words "for" and "and," which exemplifies that no construction is necessary. While the term addition of the term "***and***" may add some clarification that the "programmable network device" is performing both actions of "processing data flows" ***and*** "hosting at least one of a plurality of first network applications," the addition of "***for***" adds nothing.

I. "virtual fabric" (871 Patent, claims 1, 9)

Edge's Construction	Microsoft's Construction
an abstraction layer for applications to communicate with each other	indefinite

Claims 1 and 9 of the 871 Patent recite:

> wherein at least one of the plurality of first network applications in the programmable network device and at least one of the plurality of second network applications in the programmable cloud device are in ***secure communication with each other through a virtual fabric***.

Accordingly, the claims themselves define the term as an abstraction layer for application to communicate with each other. This is echoed in the specification. which states:

> Virtual fabric (fxVF) 504e: enables transparent switching of application and systems ***messages of a dApp between the fxCloud 304 and the fxevice 302 and***

> ***between different dApps***. The fxVF 504e is ***an abstraction layer*** that hides most the complexities of messaging from developers.

871 Patent, 13:39-44.

> Virtual Fabrice Service
>
> The Virtual Fabric (fxVF) ***provides an abstraction layer for applications to communicate with each other*** whether they are in the fxDevice or fxCloud. Various frameworks and services may use the fxVF service.

871 Patent, 20:49-54.

As such, the term is used in the specification consistent with the claims as an abstraction layer (*i.e.*, virtual) for applications to communicate with each other.

J. "the programmable network device and programmable cloud device are each powered by a sandboxing operating system which facilitates deployment of the plurality of first and second network applications" (871 Patent, claims 1, 9; 095 Patent, claims 1, 15)

Edge's Construction	**Microsoft's Construction**
plain and ordinary meaning; alternatively, the programmable cloud device and the programmable network device each having a sandboxing operating system allowing applications to run and interact with resources on the respective device	indefinite

In the context of these patents, a programmable network device or a programmable cloud device are "powered by" a sandboxing operating system when that operating system allows applications to run and interact with resources on the respective device.

The specification uses the common abbreviation "OS" to stand for "operating system." 871 Patent, 3:65; 095 Patent, 3:59. It also defines "fxOS" as a "FleXible Operating System which run on the fxDevice as the OS and firmware." 871 Patent, 3:28-29; 095 Patent, 3:23-24.

It goes on to define fxDevice as "any networking equipment embedded with a special flexible operating system (fxOS)." 871 Patent, 10:63-65; 095 Patent, 10:59-61.

The specification states that "[t]he the fxDevice is a network device that is powered by a sandboxing operating system named flexible operating system (fxOS)." 871 Patent, 10:17-19; 095 Patent, 10:13-15. The specification goes on to detail the function of this sandboxing operating system on the fxDevice. First, the sandboxing operating system performs the "sandboxing" function in its name: it "ensures each application runs as a dedicated process in sure isolation from the other applications." 871 Patent, 10:19-21; 095 Patent, 10:15-17; *see also supra* Section II.D. In addition, the sandboxing operating system (fxOS) performs a number of additional functions, including "enabl[ing] simultaneous execution of several flexible applications (fxDeviceApp 302b) on the fxDevice," manages resource utilization of each application, and allows secure connection to the fxCloud which enables communication between apps on the fxDevice and fxCloud. *See, e.g.*, 871 Patent, 10:63-67, 11:5-7, 11:26-29, 11:55-57; 095 Patent, 11:1-3, 11:21-26, 11:50-62. In other words, these devices are "powered by" an operating system when that operating system performs the functions one expects: allowing applications to run and interact with resources on the device. This needs no construction, nor is there any uncertainty here.

To the extent Microsoft argues that the term is indefinite as to the relationship between the sandboxing operating system to each of the programmable network device and programmable cloud device, a POSITA would clearly understand that each device has its own sandboxing operating system to power their respective functions. *See, e.g.*, 871 Patent, 10:19-28 (fxDevice powered by a sandboxing operating system to perform its functions); 095 Patent,

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10:13-24 (same); 871 Patent, 14:3-38 (detailing the various functions of fxCloud); 095 Patent, 14:1-33 (same).

K. "managing upgrades of the first and second network applications with substantially no interruption to operation of the programmable network device and programmable cloud device" / "facilitates upgrades of the first and second network applications with substantially no interruption to operation of the programmable network device and programmable cloud device" (871 Patent, claims 1, 9; 095 Patent, claims 1, 15)

Edge's Construction	Microsoft's Construction
having at least one instance of the application running during the upgrade	indefinite

The shared specification explains that when at least one instance of an application is left running, there is no total interruption. 871 Patent, 20:3-4, 20:24-27, 20:39-44; 095 Patent, 9:29-32, 20:21-24, 20:36-44. To the extent Microsoft argues that the term "substantially" is indefinite, that term has been construed according to its plain meaning considering a patent's specification by courts. *See, e.g.*, *LNP Engineering Plastics, Inc. v. Miller Waste Mills, Inc.*, 275 F.3d 1347, 1354 (Fed.Cir.2002) ("substantially" means "largely, but not necessarily wholly" in light of the specification); *Ecolab, Inc. v. Envirochem, Inc.*, 264 F.3d 1358, 1366–69 (Fed.Cir.2001) ("substantially" means "largely, but not wholly"); *York Products, Inc. v. Central Tractor Farm & Family Cente*r, 99 F.3d 1568, 1572 (Fed.Cir.1996) ("substantially the entire" means "nearly the entire"); *Chemical Separation Technology, Inc. v. United State*s, 51 Fed. Cl. 771, 790 (Fed.Cl.2002) ("substantially" means "nearly"); *Medtronic AVE, Inc. v. Cordis Corp.*, 516 F. Supp. 2d 741, 750 (E.D. Tex. 2007) (finding no construction of "substantially" necessary).

Moreover, with respect to claims 1 and 9 of the 871 Patent, the function of managing upgrades with substantially no interruption of operation is a function performed by the "application management portal." This claim term fragment, which Microsoft proposed for construction, is

missing the "capable of" language that links it to the "application management portal." As noted *supra*, a portal is general-purpose computer with internet access.

> In cases such as this, involving a claim limitation that is subject to § 112, para. 6 that must be implemented in a special purpose computer, this court has consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor. We require that the specification disclose an algorithm for performing the claimed function. The algorithm may be expressed as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.

Williamson v. Citrix Online, LLC, 792 F. 3d 1339, 1352 (Fed. Cir. 2015) (internal citation omitted).

The algorithms for managing upgrades with substantially no interruption in service is detailed in the specification under the heading "Hot Upgrade Procedure" with "little to no interruption" the general procedure of which entails "the new version is installed (in the memory) while the old version is still running." 871 Patent, 11: 29-32, 20:3-4. The specification also details two upgrade scenarios, during each of which one instance of the application remains running during the upgrade:

> In order to maintain, the packet forwarding function, the Switch Controller function could be performed by another device or a second processor in the same device while the fxDevice is being upgraded.

871 Patent, 20:24-27.

> In this case, the packet forwarding process is mostly unavailable. Therefore, one potential solution might be for the fxDevice to redirect the entire bit stream to a neighboring fxDevice. In other words, the fxDevice would have just a bare minimum routing function working and the rest of the function would be performed by a neighboring fxDevice.

871 Patent, 20:39-44.

In each instance the core of the algorithm comprises having at least one instance of the application running during the upgrade. Limiting the instances of the application running would cause ***some*** interruption in service due to the reduced ability to service requests. See also 871 Patent, 37:37-38 (incorporating by reference 3GPP TS 23.402), available at

https://www.etsi.org/deliver/etsi_ts/123400_123499/123402/15.03.00_60/ts_123402v150300p.pdf, pp. 17-18 (discussing similar interruptions that would be known to a POSITA).

Claims 1 and 15 of the 905 Patent attributes the same function to the sandboxing operating system of the network device and cloud device which "facilitates upgrades." The specification explains that "[t]he sandboxing operating ensures each application runs as a dedicated process [to] [ensure] isolation from the other applications," which permits one instance of the application to remain running during the upgrade, thereby permitting an upgrade to be carried out without substantial interruption. *See* 095 Patent, 9:29-32, 10:15-17, 20:21-24, 20:36-44.

L. "unique security keys associated with each of the plurality of first and second network applications" (871 Patent, claims 1, 9; 095 Patent, claims 1, 15)

Edge's Construction	Microsoft's Construction
plain and ordinary meaning	indefinite

Again, Microsoft fails to consider the entirety of the claim language which defines a term. Claims 1 and 9 of the 871 Patent recite:

> wherein the application management portal verifies authenticity of the upgrades to the plurality of first network applications and the plurality of second network applications and wherein the verification is based on unique security keys associated with each of the plurality of first and second network applications

Claims 1 and 15 of the 905 Patent recite:

> wherein the programmable network device verifies authenticity of the upgrades to the plurality of first network applications and the programmable cloud device verifies the authenticity of the upgrades to the plurality of second network applications and wherein the verification is based on unique security keys associated with each of the plurality of first and second network applications

A person of ordinary skill in the art would readily recognize that security keys generate signatures that can be verified. Consistent with the clear recitations in the claims, the specification states:

> [T]he applications may be signed with unique certificate security keys. The security keys and certificates may be allocated and/or signed by a certificate

> authority. The fxDevice 302 may be protected by validating signed applications to run or to install in the device.

871 patent, 11:30-34.

> It is important for the target network element to verify the authenticity and integrity of loaded software prior to install. The uniquely defined security keys of the application developers sign the applications.

871 Patent, 23:23-26.

Accordingly, consistent with the plain and ordinary meaning of the entirety of the phrase, applications are being verified with a signature generated with a security key.

M. "the application management portal [further] manages usage of the distributed applications…" / "the application management portal [further] manages provisioning, usage and de-provisioning of the distributed applications..." (871 Patent, claims 1, 9; 095 Patent, claims 1, 15)

Edge's Construction	**Microsoft's Construction**
ensuring availability of sufficient resources; provisioning and deprovisioning have plain and ordinary meaning of deploying and terminating instances of an application	indefinite

As noted *supra*, a portal is general-purpose computer within the internet, and it is "require[d] that the specification disclose an algorithm for performing the claimed function." *Williamson,* 792 F. 3d 1352 (Fed. Cir. 2015). The required algorithm is disclosed in the specification.

> [T]he fxManager 1230 performs a detailed analysis on the potential risks that this application may create on various parts of the network and other applications. The analysis tool uses the secure manifest file and other information to discover, for example, all the APIs used by the application, the required access-level authorization level for each of those APIs, requirements on the fxVF (inter-app, intra-app communication needs), and ***usage of platform resources*** including conflict discovery and resolutions.

871 Patent, 18:65-19:7. Accordingly, the algorithm is detailed as using information available within a secure manifest file and elsewhere to ensure the availability of sufficient resources.

The terms "provisioning" and "deprovisioning" appear only in claim 9 of the 871 Patent and claim 15 of the 095 Patent and thus are separate elements distinct from "usage." Microsoft has not requested a construction of the terms individually, nor alleged they are indefinite. Instead, Microsoft asserts two long phrases are indefinite in which the only commonality is the term "usage," for which Edge proposes the above construction.

N. "a second programmable network device which includes the at least one of the plurality of first network applications which is in the first programmable network device" (871 Patent, claim 4; 095 Patent, claim 7)

Edge's Construction	Microsoft's Construction
plain and ordinary meaning	indefinite

While Microsoft's contentions state its belief that this term is indefinite, it provides no specific reasons why, stating generically and vaguely that the term is "nonsensical and illogical." *See* Hecht Decl. Ex. C at 59. However, there is nothing unclear about this dependent claim. All it states is that a "second programmable network device" includes one of the "first network applications" in the "first programmable network device." There is nothing unclear to a layman, much less a POSITA, that one device can have the same application that exists on another device. *See, e.g.*, 871 Patent, 24:36-38 ("a private fxDeviceApp in one fxDevice could communicate with same fxDeviceApps in other fxDevice …").

O. "load controller adapted to monitor loads" (871 Patent, claim 7)

Edge's Construction	Microsoft's Construction
a controller executing at least one of a "cloud breathing" or "load monitoring" application	means plus function term; indefinite

The parties agree that the term "load controller adapted to monitor loads" is a means plus function term subject to 35 U.S.C.§ 112(f). However, the term is not indefinite because the

specification provides sufficient structure for the claimed function, namely "a controller executing at least one of a "cloud breathing" or a "load monitoring" application. "Under 35 U.S.C. § 112 ¶2 and ¶6 ...[a] clause is indefinite if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim." *Intelligent Automation Design, LLC v. Zimmer Biomet CMF & Thoracic, LLC,* 799 F. App'x 847, 851 (Fed. Cir. 2020). Simply disclosing software, however, "without providing some detail about the means to accomplish the function[,] is not enough." *Noah Sys., Inc. v. Intuit Inc*., 675 F.3d 1302, 1312 (Fed. Cir. 2012).

For means-plus-function claims "in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm," [the Federal Circuit has] held that "the disclosed structure is not the general-purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm." *Sony Corp. v. Iancu*, 924 F.3d 1235, 1239 (Fed. Cir. 2019) (quoting *WMS Gaming, Inc. v. Int'l Game Tech*., 184 F.3d 1339, 1349 (Fed. Cir. 1999)). In the *Sony* matter, where the claim term at issue also disclosed a "controller," the court found that when a "means limitation is computer-implemented, the corresponding structure must include an algorithm." *Id*. at 1240; *see also*, *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1352 (Fed. Cir. 2015) (requiring an algorithm for special purpose computers).

Here, the claimed "load controller" is a means to ("adapted to") monitor loads. The algorithm implemented by that controller for monitoring loads is found in the 871 specification, which explicitly discusses a "load controller" in disclosing the "cloud breathing" and "load monitoring" functions, and provides structure for the same. 871 at 22:10-39.

> a load monitoring application could be notified when the CPU load on a particular fxDevice (or a target area) exceeds a certain threshold. In turn, such an exemplary application could make smart

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> decisions on reducing the load on the CPU by forcing handoffs of users to neighboring cells (i.e. fxDevices).

871 Patent at 22:13-18.

> Cloud Breathing, here, is defined as a mechanism where the cloud resources are automatically expanded as load increases on the system or reduced as the load decreases.

871 Patent at 22:27-29.

> The Load Controller … could be used to monitor the load … on the existing VMs (e.g. CPU or memory utilization loads).

871 Patent at 22:33-35.

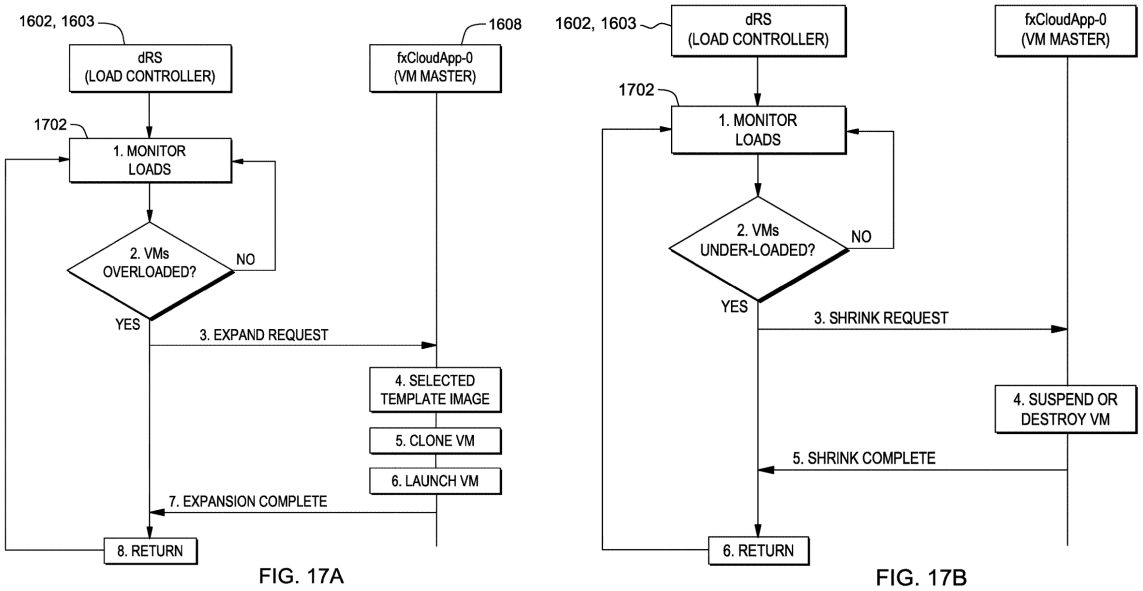
The above disclosure establishes the link to the claimed "load controller." The specification does not merely disclose software, it provides a discernible means, an algorithms for performing the "cloud breathing" and "load monitoring" functions:

> fxCloudManagement: Zoning and partitioning the network for administrative purposes. Zones and partitions could optionally put into different Virtual Machine (VM); ***VM load management and Cloud Breathing policies***; The configuration conflict resolutions. Some configurations applied to the resources may conflict with each other (e.g., one firewall rule may state drop Netflix packets explicitly and another rule may state allowing Netflix explicitly). The fxCloud resource manager could monitor these configurations and discover the conflicts and signal those to the network administrator.

871 Patent at 16:4-16.

> The Cloud Breathing, here, is defined as a mechanism where the cloud resources are automatically expanded as load increases on the system or reduced as the load decreases . This creates an automatic elasticity in the cloud dimensions. FIGS. 17A and 17B demonstrate procedures for the cloud breathing. FIG. 17A is expansion and FIG. 17B is reduction. The Load Controller in the dRS 1602, 1603 could be used to monitor the load (step 1702) on the existing VMs (e.g. 35 CPU or memory utilization loads). The VM Master of the fxCloudApp-0 1608 could effectively act on the decisions made by the dRS's Load Controller.

871 Patent at 22:23-39.



871 Patent at Figs. 17A, 17B.

Because the specification recites specific structure for the claimed function, this MPF term is not indefinite and should be construed as "a controller executing at least one of a "cloud breathing" or "load monitoring" application" per the disclosure in the specification.

P. "where each of the network device applications can communicate directly" (823 Patent, claim 13)

Edge's Construction	Microsoft's Construction
plain and ordinary meaning	indefinite

This claim term needs no construction, is readily understandable, and should be afforded its plain and ordinary meaning. Microsoft contends that this claim term is indefinite because "[i]t is unknown what the network device applications must be able to communicate directly with, whether it is with each other, or with something else. As a result, one of ordinary skill in the art would not understand or ascertain with reasonable certainty the scope of the term and it is indefinite." Hecht Decl. Ex. C at 61. Microsoft is wrong. "[I]n assessing definiteness, claims are

to be read in light of the patent's specification and prosecution history." *Nautilus v. Biosig Instruments, Inc.*, 572 U.S. 898, 908 (2014) (citations omitted). Here, the claim term is clear on its face and it neither requires construction nor renders this dependent claim indefinite.

Claim 13 is internally consistent and clear regarding the direct communication between the claimed "network device applications." Claim 13 depends on claim 1, which discloses "a programmable network device adapted to host a plurality of network device applications." Importantly, claim 1 does not require direct communication between the network device applications. Claim 13, however, adds a second programmable network device that shares at least one network device application with the programmable network device of claim 1. Within this context, it is evident that claim 13 requires each of the network device applications to communicate directly **with one another**, even when they are shared between multiple network devices.

Even if the claims were not clear on their own, the specification provides additional clarity that the network device applications are meant to communicate directly with one another:

> The fxCloud 304 and the fxOS 302 a create a virtual fabric (fxVF) for messaging between applications. The actual message can travel directly between two fxDevices or it may traverse the fxCloud 304.

823 Patent at 11:57-61.

> Intra-App Messaging
>
> This is an example of where one application in the fxDevice communicates with the same instance of the app in another instance of the same application in another fxDevice. The actual messages could go directly between the fxDevice or via the fxCloud.

871 Patent at 20:51-57.

Microsoft's attempt to create ambiguity around this clear claim language is baseless and unsupported. The Court need not construe this claim.

III. CONCLUSION

For the foregoing reasons, the Court should adopt Edge's proposed constructions.

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Dated: December 17, 2024

Respectfully submitted

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CERTIFICATE OF SERVICE

The undersigned certifies that on December 17, 2024, I electronically filed the foregoing document and all ancillary documents attached hereto with the Clerk of Court via the Court's CM/ECF system, which will send notification of such filing to all counsel of record who have all consented to electronic service in this action.

By: */s/ David L. Hecht*
David L. Hecht

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