BETA-TESTING THE "PARTICULAR MACHINE": THE MACHINE-OR-TRANSFORMATION TEST IN PERIL AND ITS IMPACT ON CLOUD COMPUTING

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ABSTRACT

*This Issue Brief examines recent cases addressing the patent eligibility of computer-implemented method claims and their implications for the development of cloud computing technologies. Despite the Supreme Court's refusal to endorse the machine-or-transformation test as the exclusive patent eligibility inquiry, lower courts have continued to invalidate method claims using a stringent "particular machine" requirement alongside the requisite abstract ideas analysis. This Issue Brief argues that 1) post-*Bilski v. Kappos *cases have failed to elucidate what constitutes a particular machine for computer-implemented methods; 2) in light of substantial variance among Federal Circuit judges' Section 101 jurisprudence, the application of the particular machine requirement has become subject to a high degree of panel-dependency, such that its relevance for analyzing software method claims has come under question; 3) notwithstanding the unease expressed by practitioners and scholars for the future of cloud computing patents, the courts' hardening stance toward computer-implemented method claims will do little to deter patenting in the cloud computing context. Instead, clouds delivering platform and software services will remain capable of satisfying the particular machine requirement and supporting patent eligibility, especially given the possible dilution of the particular machine requirement itself.*

INTRODUCTION

This Issue Brief examines recent cases addressing the patent eligibility of computer-implemented method claims and their impact on the development of cloud computing technologies. Despite the Supreme Court's refusal to endorse the machine-or-transformation test as the exclusive Section 101 inquiry, lower courts have continued to invalidate

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method claims using a stringent "particular machine" requirement alongside the requisite abstract ideas analysis. This Issue Brief argues that 1) post–*Bilski v. Kappos* cases have failed to elucidate what constitutes a particular machine for computer-implemented methods; 2) in light of substantial variance among Federal Circuit judges' Section 101 jurisprudence, the application of the particular machine requirement has become subject to a high degree of panel-dependency, such that its relevance for analyzing software method claims has come under question, 3) notwithstanding the unease expressed by practitioners and scholars for the future of cloud computing patents, the courts' hardening stance toward computer-implemented method claims will do little to deter patenting in the cloud computing context. Instead, clouds delivering platform and software services will remain capable of satisfying the particular machine requirement and supporting patent eligibility, especially given the possible dilution of the particular machine requirement itself.

I. MOT-LY CRUDE

A. Patent Eligibility 101

Section 101 of the Patent Act enumerates four patent eligible categories: "process, machine, manufacture," and "composition of matter."[1] Section 100(b) in turn defines "process" as a "process, art or method," which a number of courts have since characterized as an "unhelpful" tautology.[2] When the Supreme Court confronted the challenge of defining "process" in the 1970s, it provided little guidance other than observing that Court precedent "forecloses a literal reading" of Section 101.[3] Instead, the Court articulated a "fundamental principles" test that defines patentable subject matter through exceptions: a claim does not fall within patentable "process" if it is drawn to "laws of nature, natural phenomena, [or] abstract principle."[4]

Absent a clear definition of either "process" or "abstract" ideas, the Federal Circuit articulated a number of competing tests for analyzing patent eligibility challenges before finally attempting to restore clarity in

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[1] 35 U.S.C. § 101 (2010).
[2] 35 U.S.C. § 100 (2010); Prometheus Labs., Inc. v. Mayo Collaborative Servs., 581 F.3d 1336, 1342 (Fed. Cir. 2009); *see also* Fuzzysharp Techs. Inc. v. 3D Labs Inc., No. 07-5948, 2009 WL 4899215, at *3 (N.D. Cal. Dec. 11, 2009) (quoting the Federal Circuit's characterization of Section 100(b)'s definition of "process").
[3] *See In re* Bilski, 545 F.3d 943, 952 (Fed. Cir. 2008) (en banc) (paraphrasing the Supreme Court's holding on the definition of "process" in *Parker v. Flook*, 437 U.S. 584, 593 (1978)).
[4] *Id.* at 953.

In re Bilski. For example, in what the Federal Circuit designated the *Freeman-Walter-Abele* test, a process claim reciting an algorithm needed to apply to "physical elements or process steps" to ensure patent eligibility.[5] Subsequently, the Federal Circuit formulated an alternative test through the *Alappat-State Street* line of cases, holding that a claimed process was patent eligible only if it "produce[d] a useful, concrete and tangible result."[6]

In *In re Bilski*, the Federal Circuit rejected all alternative tests and established the "machine-or-transformation" (MOT) test as the sole inquiry for determining a process claim's patent eligibility.[7] Under the MOT test, a process is patent eligible only "if 1) it is tied to a particular machine or apparatus, or 2) it transforms a particular article into a different state or thing."[8] In addition, the Federal Circuit articulated two corollaries to the MOT test. First, the particular machine or transformation must "impose meaningful limits on the claim's scope."[9] However, simply limiting the scope of the claim to particular fields of use is "generally insufficient" for satisfying the first corollary.[10] Second, the particular machine or transformation cannot "merely be insignificant extra-solution activity."[11] Citing concerns that a "competent draftsman could attach some form of post-solution activity" involving the recited machine to circumvent the MOT test, the Federal Circuit affirmed a commitment not to elevate form over substance when assessing patent claims.[12]

When the Federal Circuit finally addressed the patent eligibility of software business methods in *In re Bilski*, it declined to institute a "broad exclusion over software or any other such category of subject matter" despite several prominent amici briefs urging to the contrary.[13] Because the case did not involve a software claim, the Federal Circuit

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[5] *See id.* at 958–59 (summarizing the final form of the Freeman-Walter-Abele test as articulated in *In re Abele*, 684 F.2d 902, 905–07 (C.C.P.A. 1982)).
[6] State St. Bank & Trust Co. v. Signature Fin. Grp., Inc., 149 F.3d 1368, 1373 (1998) (establishing the "useful, concrete and tangible result" test first formulated in *Alappat*, 33 F.3d at 1544); *In re* Alappat, 33 F.3d 1526, 1544 (Fed. Cir. 1994).
[7] *In re* Bilski, 545 F.3d at 956.
[8] *Id.* at 954.
[9] *Id.* at 961.
[10] *Id.* at 957.
[11] *Id.* at 962.
[12] *See id.* at 957 (reiterating the Supreme Court's concern in *Parker v. Flook* that patent attorneys would simply add post-solutions steps reciting machines to circumvent the MOT test, 437 U.S. 584, 590 (1978)).
[13] *Id.* at 960 n.23.

noted that such an exclusion would "be largely unhelpful in illuminating the distinctions between those software claims that are patent-eligible and those that are not."[14] Instead, the Federal Circuit affirmed the Court's holding in *State Street*, which subjected business method patents "to the same legal requirements" applied to any other method claims.[15]

When the Supreme Court examined the Federal Circuit's latest attempt to articulate a workable patent eligibility analysis, it rejected what it viewed as "two broad and atextual approaches" to interpreting Section 101.[16] First, the Court refused to adopt the MOT test as the exclusive inquiry for deciding the patent eligibility of method claims, endorsing it as merely a "useful and important clue."[17] Instead, the Court returned Section 101 inquiry to the "fundamental principles" test, which held that a claimed process is unpatentable if drawn to "a law of nature, physical phenomena," or an "abstract idea."[18] Second, as the Federal Circuit in *In re Bilski*, the Supreme Court declined to categorically exclude business methods from patentable subject matter.[19] While noting that the abstract ideas bar may well form the basis for eliminating a "narrower category" of business method patents, the Court insisted that the Patent Act "leaves open the possibility" that at least some business methods would fall within patentable subject matter.[20]

As several district courts opinions have since pointed out, although the four concurring Justices in *Bilski v. Kappos* argued for categorically excluding business methods from patentable subject matter, they shared the majority's qualified endorsement of the MOT test's merits.[21] For example, Justice John Paul Stevens expressed approval in his concurring opinion by observing that "[f]ew, if any, processes cannot

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[14] *Id.*
[15] *Id.* at 960; State St. Bank & Trust Co. v. Signature Fin. Grp., Inc., 149 F.3d 1368, 1375 (Fed. Cir. 1998).
[16] Bilski v. Kappos, 130 S. Ct. 3218, 3227 (2010).
[17] *Id.*
[18] *Id.* at 3225.
[19] *Id.* at 3228.
[20] *Id.* at 3229.
[21] *See, e.g.*, Ultramercial, LLC v. Hulu, LLC, No. 09-06918, 2010 WL 3360098, at *3 (C.D. Cal. Aug. 13, 2010) ("Ultramercial I") (noting that the four concurring Justices would have "taken the machine or transformation test to its logical limit" and held business methods as categorically unpatentable). In *Mayo Collaborative Services et al. v. Prometheus Laboratories Inc.,* the Supreme Court's most recent patentable subject matter decision, the 9-0 opinion did not disturb the *Bilski v. Kappos* holding with respect to the MOT test. 132 S.Ct. 1289, 1296 (2012).

. . . . be evaluated" by the MOT test.[22] Similarly, Justice Stephen Breyer credited the MOT test as "an *important example* of how a court can determine patentability."[23] Furthermore, because Justice Antonin Scalia joined parts of the plurality opinion which held that not many patentable processes "lie beyond" the MOT test, a district court later observed that "at least five (and maybe all) Justices seem to agree that the machine or transformation test should retain much of its utility" after *Bilski v. Kappos*.[24]

B. The Absent Particular Machine

Despite several Supreme Court Justices' qualified approval, at least half of the machine-or-transformation test has never taken concrete form. In particular, courts have been unable to clearly identify what constitutes a "particular" machine in the software context, even while invalidating method claims for failure to be tied to such a machine. In *Bilski v. Kappos*, both the majority and concurring Supreme Court Justices conducted thorough textual analyses on the definition of "process."[25] Yet neither side examined whether any definition of "particular" provided sufficient clarity and certainty to practitioners. In *In re Bilski*, the Federal Circuit panel likewise sidestepped the challenge of elucidating the particular machine requirement, remaining content to "leave to future cases the elaboration of the precise contours of machine implementation" and the task of determining "whether or when recitation of a computer suffices to tie a process claim to a particular machine."[26]

However, neither the Federal Circuit nor any district court since *In re Bilski* has identified such contours, despite having decided at least eight cases featuring patent eligibility challenges against method claims in software patents.[27] In as late as March 2011, the District Court of the

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[22] *Bilski*, 130 S. Ct. at 3235.
[23] *Id.* at 3259.
[24] *Ultramercial I*, 2010 WL 3360098, at *3.
[25] *See e.g.*, Bilski v. Kappos, 130 S. Ct. 3218, 3227 (2010) (examining "process" as defined in Noah Webster's first American dictionary).
[26] *In re* Bilski, 545 F.3d at 962.
[27] *See generally* SiRF Tech., Inc. v. Int'l. Trade Comm'n., 601 F.3d 1319, (Fed. Cir. 2010) (holding a GPS receiver as meeting the particular machine requirement without clarifying the standard for determining what constitutes such a machine); *see also* Cybersource Corp. v. Retail Decisions, Inc., 654 F.3d 1366 (Fed. Cir. 2011); Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323 (Fed. Cir. 2011) ("Ultramercial II"); Fuzzysharp Techs. Inc. v. 3D Labs Inc., No. 07-5948, 2009 WL 4899215, (N.D. Cal. Dec. 11, 2009); CLS Bank Intern. v. Alice Corp. Pty. Ltd., 768 F. Supp. 2d 221, (D.D.C. 2011); Glory Licensing, LLC v. Toys R Us, Inc., No. 09-4252, 2011 WL 1870591, (D.N.J. 2011); *Ultramercial*

District of Columbia noted that courts still had not "clearly answered" at which point a computer-implemented method would become "sufficiently tied to a *particular* computer."[28] What little concrete guidance district courts have provided stems entirely from pre-*In re Bilski* law. Even then, such decisions explain only why the claims at issue failed the MOT test, not what would clear the "particular machine" hurdle. Given such ambiguity, as recently as May 2011, the District Court of New Jersey continued to describe the state of patent eligibility law governing computer-implemented method claims with nothing more than: "the use of a programmed computer" alone cannot satisfy the MOT test.[29]

C. The Patentable Subject Matter Spectrum

Because the underlying technology in difficult patent eligibility cases rarely fits into rigid categories, practitioners and scholars alike have preferred to envision a continuous spectrum of potentially eligible inventions when assessing the merits of various Section 101 tests.[30] At one end of the spectrum exist the traditional innovations that yield concrete industrial applications, such as engine designs or new chemical manufacturing processes. At the other end are "pure" business methods, such as the attempt to patent the concept of hedging in *In re Bilski*. In the middle of the spectrum are the more difficult "hybrid" claims, which implement steps of a business method through software.[31]

II. CUTTING THE BILSKIAN KNOT

A. Mounting Reversals: What Hasn't Made the Cut

Post-*Bilski v. Kappos* case law provides only limited guidance for practitioners seeking to protect clients from a patent eligibility challenge. Since the Supreme Court's directive to return Section 101 inquiry to its fundamental principles roots, most courts have applied both

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I, 2010 WL 3360098; DealerTrack, Inc. v. Huber, 657 F. Supp. 2d 1152, 1156 (C.D. Cal. 2009) ("Dealertrack I") (all lacking definition of "particular").

[28] *CLS Bank Intern.*, 768 F. Supp. 2d at 237.

[29] *Glory Licensing*, 2011 WL 1870591, at *2.

[30] *See, e.g.*, John V. Biernacki, *Bilski and the Discernment of Patent Eligibility for Business Method Patents, in* THE IMPACT OF BILSKI ON BUSINESS METHOD PATENTS, LEADING LAWYERS ON NAVIGATING PROCEDURAL CHANGES, FORMING NEW PATENT FILING STRATEGIES, AND FORECASTING FUTURE DEVELOPMENTS, 2009 WL 2510890, *7 (Eddie Fournier ed., 2009) (describing the subject matter spectrum); *see also* Mark A. Lemley, Michael Risch, Ted Sichelman & R. Polk Wagner, *Life After Bilski*, 63 STAN. L. REV. 1315, 1327 (2011) (noting that "subject matter category delineation is notoriously elusive").

[31] Biernacki, *supra* note 29, at *7.

the MOT and the abstract idea analyses.[32] On one hand, recent cases evince a more stringent particular machine requirement. Reciting terms as broad as the "internet" or as generic as "format instructions" has clearly proven insufficient for tying method claims to a particular machine.[33] On the other hand, while more specific programming details could in theory transform a general-purpose computer into the elusive "particular machine," the Federal Circuit has declined to elucidate what such recitation might entail. Unfortunately, confusion over the particular machine requirement mirrors the state of the abstract idea analysis, for which courts have articulated an even more cryptic test excluding methods that could "as a practical matter, be performed entirely in a human's mind."[34] As a result, despite the prevalence of parallel MOT and abstract ideas analyses, the latter doctrine's restoration has hardly helped to clear confusion plaguing the former. In the meantime, as courts continue to sidestep the challenge of articulating a workable particular machine requirement, applicants will continue to face uncertainty over a crucial threshold issue.

For example, in *CyberSource Corp. v. Retail Decisions, Inc.*,[35] the Federal Circuit held that a method for detecting online credit card fraud failed the MOT test, because the "Internet" recited in the claim did not qualify as a particular machine.[36] The patent at issue notably did not tie its method claim to any particular algorithm. It covered instead any fraud detection method that tested whether the IP address using a credit card was consistent with IP addresses associated with the same card in past transactions.[37] In its abstract idea analysis, the Federal Circuit concluded that Cybersource's method claim covered an unpatentable

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[32] *See, e.g.*, *Cybersource*, 654 F.3d at 1371, 1373 (holding the method claims at issue ineligible under both the MOT and the abstract idea analyses); *see also CLS Bank Intern.*, 768 F. Supp. 2d at 236, 246 (holding the method claims at issue ineligible under both the MOT and the abstract idea analyses).

[33] *See, e.g.*, *Cybersource*, 654 F.3d at 1370 (holding that the "Internet" recited in the claims fails to qualify as a particular machine because it functioned as a source of data only); *see also Glory Licensing*, 2011 WL 1870591, at *3 (holding that "format instructions" and "content instructions" were generic terms insufficient for tying the method claim to a particular machine).

[34] *Cybersource*, 654 F.3d at 1376; *see also* Research Corp. Techs., Inc. v. Microsoft Corp., 627 F.3d 859, 868 (Fed. Cir. 2010) (holding that the Federal Circuit "does not presume" to define what constitutes an abstract idea beyond recognizing that this disqualifying characteristic should exhibit itself manifestly).

[35] CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1370 (Fed. Cir. 2011).

[36] *Id.*

[37] *Id.* at 1372.

"mental process," because a person could infringe by merely inferring fraud when a single IP address used different credit cards with different user names and billing addresses.[38] In response to the patentee's contention that the method was sufficiently tied to a particular machine – in this case the "Internet" – the Federal Circuit observed that the Internet functioned only as a data source and therefore could not have "performed the fraud detection steps of the claimed method."[39] Because such data-gathering steps "cannot make an otherwise nonstatutory claim statutory," the Federal Circuit held that Cybersource's method claim failed the particular machine requirement.[40]

Similarly, in *FuzzySharp Technologies. Inc. v. 3D Labs Inc.*,[41] the Federal Circuit approved of a district court's analysis in holding that a method claim failed the particular machine requirement, despite vacating the lower court's judgment in the wake of *Bilski v. Kappos*.[42] The patentee had argued in the District Court of the Northern District of California that its method for improving 3D graphics was tied to a particular machine on the strength of references to "computer storage" and "computer."[43] The District Court held that such a "passing reference" to hardware failed the MOT test and could not impart patent eligibility to methods otherwise drawn to calculations and algorithms.[44] Although the Federal Circuit on appeal recognized that the failure to satisfy the MOT test no longer ensured patent ineligibility under *Bilski v. Kappos*, it agreed with the District Court's application of the particular machine requirement.[45] Since general references to a computer imposed only two limitations – that the machine must be able to compute and store data – the Federal Circuit pointed out that Fuzzysharp's recitation of such functions was "essentially synonymous" with a computer.[46] Therefore, the Federal Circuit concluded that the hardware pieces recited in Fuzzysharp's patent failed to impose "meaningful limits" on claim scope.[47]

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[38] *Id.* at 1370.
[39] *Id.*
[40] *Id.*
[41] FuzzySharp Tech. Inc. v. 3DLabs Inc., No. 2010-1160, 2011 WL 5248297, at *3 (Fed. Cir. Nov. 4, 2011).
[42] *Id.*
[43] *Id.* at *2.
[44] *Id.* at *4.
[45] *Id.* at *3.
[46] *Id.*
[47] *Id.* at *4.

Finally, in *Glory Licensing LLC v. Toys "R" Us, Inc.*,[48] the District Court of New Jersey denied the patent eligibility of a method for "processing information from a template file" using "content instructions. . . . [and] customizable transmission format instructions" on a "programmed computer."[49] While recitations of content and format instructions represented the patentee's only attempts to impose specific limitations on claim scope, the District Court noted that the patent neither defined such "generic" terms nor shed light on "what the instructions entail," or "who programs them according to what specifications."[50] The court thus held that the method claim fell short of the particular machine requirement.[51] As with the Federal Circuit in *Cybersource*, the District Court did not attempt to pinpoint at what stage a computer-implemented method would become sufficiently tied to a particular machine.

B. MOT in Peril: Panel Dependency

As courts continue to struggle with identifying the particular machine, recent cases reveal an even more troubling dissonance among Federal Circuit judges regarding the relevance of the particular machine requirement to analyzing computer-implemented methods. On one end of the spectrum, Federal Circuit Judge Randall Rader sees little value in the "confusing terminology" of the MOT test and prefers confining Section 101 to a "coarse" filter with no role for invalidating claims.[52] As to method claims in software, Judge Rader supports abolishing the particular machine requirement altogether, in light of the blurring "line of demarcation" between hardware and software technologies.[53] On the other end of the spectrum, Judge Timothy Dyk remains more willing to use the MOT test to curtail excessively broad claims and has even come close to limiting particular machines to non-computing hardware devices.[54] Although Judge Dyk has softened his stance since *Bilski v. Kappos* by allowing computing hardware to qualify as a particular machine, panels featuring Judge Dyk have continued to rely on the MOT

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[48] Glory Licensing, LLC v. Toys R Us, Inc., No. 09-4252, 2011 WL 1870591, at *1 (D.N.J. 2011).
[49] *Id.*
[50] *Id.* at *3.
[51] *Id.*
[52] Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323, 1329 (Fed. Cir. 2011) [hereinafter "Ultramercial II"].
[53] *Id.*
[54] *See* SiRF Tech., Inc. v. Int'l. Trade Comm'n., 601 F.3d 1319, 1333 (Fed. Cir. 2010) (holding a particular machine cannot merely permit "a solution to be achieved more quickly, i.e., through the utilization of a computer for performing calculations").

test to invalidate computer-implemented method claims.[55] Given the variance in Section 101 jurisprudence articulated in recent cases and the lack of Supreme Court guidance, the relevance of the MOT test itself will likely remain subject to a high degree of panel-dependency.

The gulf between various Federal Circuit Judges was evident even before the Supreme Court rejected the MOT test as the exclusive Section 101 inquiry. In as early as *In re Bilski*, Judge Rader cast the MOT test as a "judicial innovation" and promoted an alternative conception of patent eligibility as a generous hurdle that left invalidation to other statutory requirements.[56] In a colorful dissent, Judge Rader accused the *In re Bilski* majority of "legal sophistry" in having read exclusions into Section 101 when the statutory language provided no such "hint."[57] The admonishment is curious given the necessity and pedigree of judge-made law in determining the boundaries of "process." Nonetheless, Judge Rader characterized the MOT test as a "circuitous, judge-made" law with no statutory foundation.[58] Instead, he distinguished Section 101, which ought to "provide generously" for patent eligibility, from the more stringent patentability requirements that can better screen out unpatentable inventions.[59] Because the Patent Act focused "patentability on the specific characteristics of the claimed invention" more appropriately addressed under the doctrines of novelty and utility, Rader faulted the majority for shifting the focus to the wrong section and imposing limitations on "process" beyond its "broad and ordinary meaning."[60]

In contrast to Judge Rader, Judge Dyk not only authored a concurring opinion in full agreement with the *In re Bilski* endorsement of the MOT test, but also formulated a more stringent version of the test by elevating the hardware requirement for particular machines.[61] In *SiRF Tech., Inc. v. Int'l Trade Comm'n*,[62] a pre-*Bilski v. Kappos* case, Judge Dyk authored an opinion affirming the patent eligibility of two method claims related to Global Positioning System (GPS) technologies, since

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[55] *See* Dealertrack, Inc. v. Huber, 2012 WL 164439, at *17 (Fed. Cir. 2012) [hereinafter "Dealertrack II"] (holding the method claims at issue were not tied to a particular machine).
[56] *In re* Bilski, 545 F.3d 943, 1012 (Fed. Cir. 2008) (en banc).
[57] *Id.*
[58] *Id.*
[59] *Id.*
[60] *Id.*
[61] *Id.*
[62] SiRF Tech., Inc. v. Int'l. Trade Comm'n., 601 F.3d 1319, 1331 (Fed. Cir. 2010).

the GPS receiver recited was "essential" for performing the claimed methods.[63] Although the outcome was uncontroversial, Judge Dyk also held that a particular machine cannot "function solely as an obvious mechanism for permitting a solution to be achieved more quickly, i.e., *through the utilization of a computer for performing calculations*."[64] While contrasting the GPS receiver with a computer lent additional support to the holding, Judge Dyk's language veered toward creating a distinction between computing and non-computing hardware that was unnecessary for reaching the same outcome. Once the court determined that a GPS receiver performs functions essential to the method and imposes meaningful limitation on claim scope, the method was clearly patent eligible. Yet, Judge Dyk's opinion explicitly referred to a computer performing calculations as a machine that would be insufficient to meet the particularity requirement, despite the fact that computing devices do little more than enabling algorithms to be performed more quickly.

In the wake of *Bilski v. Kappos*, however, Judge Dyk has moderated his stance by allowing both computing and non-computing hardware to qualify as particular machines when provided with sufficient programming specifications. For example, in *DealerTrack, Inc. v. Huber*,[65] a Federal Circuit panel including Judge Dyk affirmed a lower court decision holding "a computer aided method of managing a credit application" patent ineligible.[66] The claims at issue included three hardware components: 1) a central processor "consisting of a specially programmed computer hardware and database," 2) a "remote application entry and display device," and 3) a "remote funding source terminal device."[67] The District Court had earlier dismissed the central processor as a general computer given the patentee's failure to "specify precisely how the computer hardware and database are 'specially programmed.'"[68] In addition, the District Court had held that the remaining hardware pieces recited also fell short of the particular machine requirement, because the claim construction order indicated that such hardware could include "any device," even a "dumb terminal."[69] On appeal, the Federal Circuit rejected the patentee's contention that the phrase "computer-

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[63] *Id.*
[64] *Id.* at 1333 (emphasis added).
[65] Dealertrack, Inc. v. Huber, 2012 WL 164439, at *15 (Fed. Cir. 2012) [hereinafter "Dealertrack II"].
[66] *Id.*
[67] Dealertrack, Inc. v. Huber, 657 F. Supp. 2d 1152, 1156 (C.D. Cal. 2009) [hereinafter "Dealertrack I"].
[68] *Id.*
[69] *Id.*

aided" in the preamble could render the claims patent eligible, holding instead that the claim covered the abstract idea of "processing information through a clearinghouse."[70] The Federal Circuit's opinion marked a compromise between the pre-*Bilski* Section 101 views of Judge Rader and Judge Dyk. In contrast to Judge Rader's hostility toward judicial innovation, Judge Dyk's opinion in *Dealertrack* continued to rely on the MOT test. Repeating a familiar refrain, Judge Dyk held that the "computer" recited failed the particular machine requirement, because the patent language was "silent as to how a computer aids the method" and covered usage with "any existing or future-devised machine."[71] At the same time, despite citing *SiRF* as support, Judge Dyk in *DealerTrack* remained open to the possibility that computers could satisfy the particular machine requirement with sufficient programming specifications.[72]

In contrast, *Bilski v. Kappos* only emboldened Judge Rader in his opposition to the MOT test, to the point that his most recent opinion outright denies the test's applicability to computer-implemented methods. In *Ultramercial, LLC v. Hulu, LLC* ("Ultramercial II"),[73] Judge Rader authored an opinion reversing a district court decision that held a method for distributing copyrighted advertising material online unpatentable.[74] The claims at issue described "a method for distribution of products over the Internet via a facilitator" and a method for downloading the "media product accessed."[75] Judge Rader first applied the abstract idea analysis and held that the claims covered more than the "mere idea" of using advertising as a form of currency.[76] Instead, the claims disclosed "a practical application" through steps that "are *likely* to require intricate and complex computer programming" as well as steps that require "specific application to the Internet and a cyber-market environment."[77] Citing the Supreme Court's view that the MOT test applied to Industrial Age processes better than Information Age inventions, Judge Rader ignored the particular machine rule and its corollaries. Contrary to the Federal Circuit's analysis in *Cybersource*,

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[70] *Dealertrack II*, 2012 WL 164439, at *15.
[71] *Id.* at *16.
[72] *Id.* at *17 (holding that the patent "does not specify how the computer hardware and database are specially programmed to perform the steps claimed," thus allowing in theory that sufficient programming details could ensure patent eligibility).
[73] Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323, 1330.
[74] *Id.*
[75] *Id.* at 1324.
[76] *Id.* at 1328.
[77] *Id.* (emphasis added).

just a month prior to *Ultramercial II*, Judge Rader made no attempt to determine whether the "Internet" in Ultramercial's patent functioned as a mere data source. Nor did he scrutinize the level of programming specifications. Content that some of the steps in the method claims would *likely* require "complex computer programming," Judge Rader declared the Federal Circuit "simply find[s] the claims here to be patent eligible."[78]

Judge Rader's reasoning also strongly suggested that the particular machine requirement would become altogether irrelevant to cases involving computer-implemented methods. First, in response to the lower court's decision that the hardware recited in Ultramercial's claims failed to qualify as a particular machine, Judge Rader cited his own concurring opinion in *In re Alappat* seventeen years earlier:

> the inventor can describe the invention in terms of a dedicated circuit or a process that emulates that circuit. Indeed, the line of demarcation between a dedicated circuit and a computer algorithm accomplishing the identical task is frequently blurred and is becoming increasingly so as the technology develops.[79]

Since software processes have become "interchangeable" with hardware circuits, Judge Rader concluded that new inventions "could be claimed in terms of . . . . hardware circuits," or "more efficiently, in terms of the programming."[80] In allowing both hardware and software to support patent eligibility, Judge Rader effectively abolished the requirement for a particular machine in computer-implemented method cases. Second, Judge Rader also reiterated the conception of Section 101 that he advanced in *In re Bilski* – a "coarse filter" with no role in invalidating patents based on vagueness, indefinite disclosure, or failure to enable.[81] By affirming the patent eligibility of Ultramercial's method claims despite the admitted lack of any "particular mechanism" specified, Judge Rader effectively established the abstract idea analysis as the only relevant inquiry for computer-implemented methods. Moving forward, the recitation of hardware components will likely become unnecessary if the Federal Circuit panel hearing the case endorses Judge Rader's views.

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[78] *Id.*
[79] *Id.* at 1329.
[80] *Id.*
[81] *Id.*

III. THE FUTURE OF CLOUD COMPUTING PATENTS

A. Deuxième Machine as Deus Ex Machina

In light of a recent string of successful Section 101 challenges, some practitioners and in-house counsel have expressed unease with the future of software patents in cloud computing. For example, Yao Wang of Venable LLP warned that the Federal Circuit's "characterization of the Internet" may become "a hindrance to software inventions in cloud computing, which relies on the Internet and collects data from the Internet."[82] Similarly, Peter Kang, a partner at Sidley Austin LLP, observed that "cloud computing relates not only to [the] development" of methods for data communication and integration, it also "relates to business models," which "have proliferated due to the technology enabled by cloud computing."[83] In light of the developing case law under *Bilski*, Kang called upon patent attorneys to steer clear of "Section 101 issues by tailoring claims appropriately to avoid unduly abstract processes."[84] Horatio Gutierrez, the Deputy General Counsel at Microsoft, likewise warned that because the patentability debate in the United States "shows no sign of abating," the scope for patent protection of software "seem[s] likely to become more complex and less predictable in the cloud environment."[85]

Given disagreements between Federal Circuit judges as to Section 101's proper role, the treatment of computer-implemented method claims will likely become subject to a high degree of panel dependency. In cases where Judge Rader's vision of Section 101 as a mere "coarse filter" prevails, applicants should have little to fear from a patent eligibility challenge. It is important to note that, while means-plus-function claims still must provide sufficient programming specifications to satisfy definiteness requirements under Section 112, the same requirements have yet to be extended to method claims.[86] Therefore,

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[82] Yao Wang, *CyberSource Decision Raises the Patent-Eligibility Bar for Software*, VENEABLE LLP IP BUZZ, (September 7, 2011), http://www.venable.com/cybersource-decision-raises-the-patent-eligibility-bar-for-software/.

[83] Peter H. Kang, *Intellectual Property and Legal Issues Surrounding Cloud Computing*, at 15, http://www.aipla.org/learningcenter/library/papers/MWI/11MWI/2011%20MWI%20Meeting%20Materials/Kang_Paper.pdf.

[84] *Id.*

[85] Horacio E. Gutiérrez, *Peering Through the Cloud: the Future of Intellectual Property and Computing*, 20 FED. CIRCUIT B.J. 589, 593, (2011).

[86] Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1338 (Fed. Cir. 2008) (holding that computer-implemented means-plus-function

method claims would be unlikely to fall at either the indefiniteness or patent eligibility hurdles, as long as the steps in performing the method are likely to require complex programming.

Yet, even in cases where the particular machine requirement remains relevant, an analysis accounting for disparate types of cloud computing suggests that *Bilski*'s impact should vary in proportion to the importance of the cloud services to performing the claimed methods. For example, an Infrastructure as a Service (IaaS) or utility computing cloud service (such as Amazon's Elastic Compute Cloud) – which provides data storage, computation capacity and virtual machine instances on a pay-as-you-use basis – seems unlikely to satisfy the particular machine requirement. When a cloud serves as a source of data or a rentable general-purpose machine, it merely replaces the off-cloud resources that users would have otherwise owned. Therefore, similar to the "Internet" in *CyberSource*, such clouds fail the MOT test's second corollary, which disqualifies those hardware components that perform only extra-solution activities.

On the other hand, a Platform as a Service (PaaS) or Software as a Service (SaaS) would likely satisfy the "particular machine" requirement that most Federal Circuit judges endorse. Unlike hardware components that perform preliminary data-gathering steps, the cloud at the PaaS and SaaS level perform at least some steps in the claimed method. At the same time, such clouds also impose sufficient "specific limitations" upon claim scope. For instance, in contrast to Amazon's cloud with no programming language restrictions, Google's App Engine and other niche competitors support only designated languages, and sometimes a proprietary language.[87] Google's App Engine also provides Google-specific application platform interfaces and client-side tools.[88] Such limitations should further bolster the PaaS and SaaS clouds' claim

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claims failed the definiteness requirement, because it lacked sufficient disclosure of algorithm used to perform the functions claimed).

[87] *See, e.g.*, *Google App Engine Python Runtime*, GOOGLE, https://developers.google.com/appengine/docs/python/runtime#Pure_Python (last visited May 19, 2012); *Google App Engine Java Sandbox*, GOOGLE, https://developers.google.com/appengine/docs/java/runtime#The_Sandbox (last visited May 19, 2012) (demonstrating Google App Engine supports two application environments).

[88] *See, e.g.*, Google App Engine Experimental Features, GOOGLE, https://developers.google.com/appengine/docs/features#Experimental_Features (last visited May 19, 2012);Google App Engine Production Features, GOOGLE, https://developers.google.com/appengine/docs/features#Production_Features (last visited May 19, 2012) (listing some application platform interfaces available).

to qualifying as a particular machine as opposed to any "existing or future machine."

Finally, recent Board of Patent Appeals and Interferences decisions applying a diluted particularity requirement indicate that the impact on cloud computing could take an even more benign direction. For instance, in *Ex Parte Oleg Wasynczuk*,[89] the Board examined a simulation system "using a distributed computer network, wherein subsystems can be simulated independently."[90] The Board held that the method claim at issue – which included a first simulating step performed on a "first physical computing device" and a second simulation step performed on a "second physical computing device," – was sufficiently tied to a particular machine because the second physical computing device qualified as such a "particular apparatus."[91] The Board's conclusion rested on two findings of fact: 1) "in some situations, multiple models are executed on multiple distinct computers," and 2) "in other situations, multiple models can be executed on a single computer."[92]

Ex Parte Wasynczuk represents a particularly sloppy decision given its cursory application of the particular machine requirement. First, the Board's reasoning focused on the individuality of the second computing device, rather than any attribute that rendered it "particular." Moreover, the Board did not apply either corollary to the MOT rule, such as investigating whether the second computing device was sufficiently important for the claimed method. When the Board's own fact findings indicated that running multiple simulation models on one computer was possible in some situations, the Board should have at least examined whether the patentee was attempting to sidestep the particular machine requirement by reciting a straw-man machine.

If courts adopt a particularity requirement focusing merely on the individuality of the machines, innovators would likely face a much more lenient MOT test. Claims that were previously unpatentable in a single machine setting would become eligible, as long as the patentee adds a second, server-side machine as a *deus ex machina*. Allowing a nonessential server to qualify as the particular machine would clearly violate the second corollary of the MOT test, which holds that machines performing extra-solution activities are insufficient. Moreover, as more technologies migrate onto the cloud, such a toothless rule would impose

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[89] *Ex parte* Wasynczuk, No. 2008-1496, 2008 WL 2262377, at *1 (B.P.A.I. Jun. 2, 2008).
[90] *Id.*
[91] *Id.* at *1, *2, *10.
[92] *Id.* at *3.

strong disincentives on innovation by granting too many patents, since cloud computing technologies easily accommodate such "second" physical computing devices. So far, at least one district court has cited the *Ex Parte Wasynczuk* analysis in a Section 101 case without criticizing its reasoning.[93] The potential for lax application at the district court level should further allay fears of applicants.

B. Other Arrows in the Quiver

Equally importantly to the future of cloud computing, practitioners can continue to rely on other claim types to shield clients from patent eligibility challenges. Given the integration of multiple client-side and server-side machines, cloud-computing technology should always be able to support at least one system or apparatus claim. Therefore, stripping method claims from the patent attorney's arsenal does not mean that the underlying invention will yield no patentable claims at all. A more stringent particularity requirement merely prevents applicants from claiming their ideas too broadly by using method claims. Accordingly, patent attorneys should continue using system or apparatus claims to protect client inventions related to cloud computing technology. If a method claim is necessary, patent attorneys should distinguish the system or apparatus claims from the method claims as much as possible to prevent both claims falling to a Section 101 challenge.

Whether the MOT test applies exclusively to method claims or not, the availability of other claim types does not mean patent attorneys should redraft method claims to resemble other claim types in order to sidestep the MOT test. In light of the Federal Circuit's guidance to assess claims based on substance rather than form, courts have reclassified claim types before applying the MOT test. For example, in *Every Penny Counts, Inc. v. Bank of America Corp.*,[94] the District Court of the Middle District of Florida examined a method claiming "a system where by consumers can save and/or donate a portion of a credit or debit transaction."[95] Although the claim was "categorized as a system," the District Court concluded that the claim was in fact drawn to a method, because the claim has "substantial practical application. . . . [only] in connection with computers, cash registers and networks," yet is "not

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[93] *See* Glory Licensing, LLC v. Toys R Us, Inc., No. 09-4252, 2011 WL 1870591, at *3 (D.N.J. 2011) (analyzing the method claim at issue using the framework articulated in *Ex Parte Wasynczuk*, 2008 WL 2262377, at *1).

[94] Every Penny Counts, Inc. v. Bank of America Corp., No. 07-042, 2009 WL 6853402, *1 (M.D. Fla. May 27, 2009).

[95] *Id.*

comprised of those devices."[96] The District Court then held that the disguised method claim failed the particular machine requirement for being drawn to "a mathematical algorithm."[97] Similarly, the Federal Circuit in *Cybersource* emphasized that "[r]egardless of what statutory category" the claim language "is crafted to literally invoke, we look to the underlying invention for patent-eligibility purposes."[98] Thus, when assessing Cybersource's Beauregard claim, the Federal Circuit looked past its format and held that the claim was in fact drawn to "a method for detecting credit card fraud, not a manufacture for storing computer-readable information," before concluding that the claim failed the MOT test.[99] Given the Federal Circuit's willingness to reclassify claims, patent attorneys should refrain from attempting to circumvent the MOT test by rewriting a method claim into another format.

IV. CONCLUSION

Justice Stevens opened his concurring opinion in *Bilski v. Kappos* by cautioning, "it is especially important that the law remain stable and clear" in the "area of patents."[100] Despite Justice Stevens's warning, recent cases have instead added to the uncertainty surrounding an important threshold issue facing applicants. Not only have courts failed to elucidate at what point a general computer becomes a particular machine, but the Federal Circuit has also thrown the MOT test's applicability to computer-implemented methods into doubt, subjecting its interpretation to a high degree of panel dependency. Nonetheless, the courts' hardening stance toward computer-implemented methods will be unlikely to deter patenting in the cloud computing context, as long as the bundled cloud services extend beyond utility computing. Clouds that deliver platforms and software services should continue to qualify as particular machines even under the more stringent MOT test evinced in recent cases. Combined with the continued availability of other claim types and the potential for a dilution of the particular machine requirement itself, the future of cloud computing should remain sunny and spotless.

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[96] *Id.* at *2.
[97] *Id.* at *3.
[98] Cybersource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1374 (Fed. Cir. 2011).
[99] *Id.* at 1375.
[100] Bilski v. Kappos, 130 S. Ct. 3218, 3231 (2010).