Divided patent infringement and patent valuation

A series of recent decisions from the Court of Appeals for the Federal Circuit mean that patent valuation will never be the same again

By **Edward Van Gieson**

The Federal Circuit of the United States recently issued a series of decisions on divided patent infringement (also known as joint infringement) that fundamentally alter many assumptions about patent valuation in IP audits, licensing negotiations and litigation. While the cases are primarily focused on computer software and internet patents, they also have applicability to other technical fields.

How divided infringement fits into theories of liability

Figure 1 illustrates different concepts of liability under US patent law for the hypothetical example of a patent claim having three elements – A, B and C. Conventional direct liability occurs if the defendant practises all three elements.

Theories of indirect liability still require a direct infringer, such as a customer of the defendant that practises all elements of the claim. Contributory liability arises if a third party practises all elements of the invention and the defendant sells an underlying article to the third party that has no substantial non-infringing uses. For example, the defendant could sell a widget having elements A, B and C to which the end customers make a trivial modification in order for the customer to practise elements A, B, and C. Inducement liability arises if a defendant intentionally encourages a third party to infringe the plaintiff's patent, such as acting in a way that encourages a third party to practise elements A, B and C. For example, a defendant could individually sell elements A, B and C and then provide an instruction book for others to make the combination A, B and C.

Divided infringement liability is a special subset of direct liability. Traditionally, in order to infringe a patented process, a single party must practise each step of the claim. Divided infringement occurs when two or more different parties are required to infringe the claims of a patent. A party cannot avoid infringement by having someone else carry out one or more claimed steps on its behalf. If one party exercises "control or direction" over the entire process, every step is attributed to the "mastermind" controlling party (*BMC Resources, Inc v Paymentech, LP*, (Fed Cir 2007)). For example, suppose that the defendant practises elements A and B, but that a third party practises element C. Under the case law, direct liability is avoided if the defendant does not exercise control and direction of the third party to practise element C.

Recent changes in federal circuit law on divided infringement

In *Akamai Tech Inc v Limelight Networks Inc* (Fed Cir 2010) the Federal Circuit held "as a matter of Federal Circuit law that there can only be joint infringement when there is an agency relationship between the parties who perform the method steps or when one party is contractually obligated to the other to perform the steps". *Akamai* clarified what was meant by earlier case law that the requisite level of control or direction giving rising to liability is where "the law would traditionally hold the accused direct infringer vicariously liable for the acts committed by another party".

Limelight was found not liable under a divided infringement analysis. Limelight performed all of the steps of the asserted method claims related to a content delivery network, except for a tagging step to tag links to embedded content. Limelight provided the content delivery service, but required its customers (eg, website designers/content providers) to tag links on their web pages to embedded objects hosted by Limelight. Limelight provided the information necessary for its customers to modify their web pages and perform the necessary tagging. Additionally, Limelight's contract with content providers required the content providers to perform the tagging if they utilised Limelight's service. However, the form contract did not oblige Limelight's customers to perform any of the method steps. Instead, the contract merely explained that the customer would have to perform the steps if the customer decided to take advantage of Limelight's service. That, is the customers retained independent discretion and control over how and in what respect they used Limelight's system.

In *Golden Hour Data Systems Inc v emsCharts Inc* (Fed Cir 2010), the Federal Circuit also clarified that the doctrine of divided infringement applies to both method and system claims. In *Golden Hour* two different companies collaborated together and sold two different software programs. The Federal Circuit affirmed the lower court's holding that there was no infringement on a divided infringement theory for both method and system claims.

There are, however, potential traps for the unwary with regard to system claims. In *Centillion Data Systems LLC v Qwest Communications International Inc* (Fed Cir 2011), the Federal Circuit addressed the issue of infringement for "'use' of a system claim that includes elements in the possession of more than one actor". The court stated that to use a system "for purposes of infringement, a party must put the invention into service, i.e., control the system as a whole and obtain benefit from it". The key issue in *Centillion* was whether the end customers had sufficient beneficial use of a defendant's back-end system for the customer to be found under 35 USC § 271 to use the entire system as claimed in a patent. Qwest provided a billing service in which there was back-end back office system support provided by Qwest and also client applications that required end customers to download software acting as a front-end portion of the system. Qwest was

Figure 1. **Divided infringement and concepts of liability under US patent law**

Direct liability The defendant practises all elements A, B and C.	**Contributory liability** A party that is not the defendant practises all elements A, B and C. The defendant's liability....
Divided infringement liability No one party practises all claim elements, such as the defendant practising elements A and B and a third party practising element C. The defendant may still be liable if it directs and controls the third party to practise C.	**Inducement liability** A third party that is not the defendant practises all elements A, B and C. The defendant's liability comes about by intentionally encouraging the third party to infringe.

found not to use the system under 35 USC § 271 by providing the back-end services. However, Qwest's customers were found to use the claimed system under 35 USC § 271 because they had beneficial use of the back-end services provided by Qwest. *Centillion* opens up the possibility that a defendant that practises a portion of a system claim may find that it is still liable in an indirect infringement analysis. Additionally, in *dicta* the Federal Circuit in *Golden Hour* stated that for system claims, there may still be liability if the defendant's actions can be interpreted as selling the entire system.

The Federal Circuit has also provided additional guidance for system claims that there are limits as to how liberally it will find that claims require multiple actors. If the claim includes other actors as part of the environment of the claim, it may be considered to be irrelevant as long as the defendant otherwise makes or uses the claimed invention. In *Uniloc USA Inc v Microsoft Corp* (Fed Cir 2011), Microsoft was unsuccessful in arguing for non-infringement of system claims on a divided infringement theory. Microsoft argued that it did not infringe a claim for a remote registration system because the claims required an environment including certain aspects related to the end user's local computer. The Federal Court noted: "That other parties are necessary to complete the environment in which the claimed element functions does not necessarily divide the infringement between the necessary parties. For example, a claim that read 'An algorithm incorporating means for receiving emails' may require two parties to function, but could nevertheless be infringed by the single party who uses an algorithm that receives e-mails."

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It is astonishing, when the cases are considered in totality, how closely two different entities can collaborate and avoid liability under a divided infringement analysis. In its recent decisions the Federal Circuit has clarified that two parties may collaborate, have a strategic partnership, provide technical assistance and engage in joint marketing while still having an “arm’s-length” transaction. Even ordinary contracts to provide a service may not be enough to trigger liability.

Patent valuation considerations

The recent string of decisions will have an impact on the way in which patent values are calculated in the United States. Among the issues that need to be considered are the following.

Method and system claim differences

Note first that the value of certain types of patents having only method claims is greatly diminished under *Akamai*. The strong language in *Akamai* provides a basis, in some fact patterns, for a party to make a comparatively simple and straightforward divided infringement argument that it does not need a patent having only method claims that require two or more entities to infringe. In the right fact patterns, this could be a comparatively straightforward way to attack the value of a patent in a negotiation.

There is nothing in the recent cases to suggest that a party cannot redesign a process to reduce risk exposure as long as any contracts and agreements with the third party do not create an agency relationship or otherwise obligate the third party to perform specific steps in a patent. For certain types of web services, for example, a third party might be used to provide some high-level functions of the service, although care would have to be taken to not obligate the third party to perform the function in a specific manner indicative of direction and control. This leads to the possibility that during licensing negotiations, a party can make arguments that the value of the patent is diminished because of the potential ability to design around method claims under the holding of *Akamai*.

System claims have some significant differences. The *Akamai* decision does not mention system claims. *Uniloc* suggests that for system claims, the courts may ignore limitations merely related to the general “environment” in which the claims function. This means that, all else being equal, a system claim is less likely to fall under the framework of a divided infringement analysis.

Even if the system is clearly distributed between entities, *Centillion* indicates that merely splitting system elements between two different parties is not the end of the story. If one of the parties still has beneficial use for the entire system, there may still be liability under an indirect infringement theory. However, as it is harder to prove indirect infringement, the value of patents having system claims is still reduced.

One aspect that should be kept in mind is that the value of a patent depends not just on the relative risk of infringement being found, but also on the potential damages that could be assessed in litigation.

Referring to Figure 2, US patent law treats method claims differently from other types of claims in assessing past damages – that is, damages for infringement prior to the filing of a lawsuit. A patent owner can collect past damages for up to six years prior to filing a patent lawsuit patent. For method claims, there are no special requirements to pursue past damages. However, for claims directed to articles of manufacture (eg, computer-readable medium claims, apparatus claims and system claims), the

Figure 2. **Differences in past damages for method and system claims**

	Marking or notice	No marking or notice
Patented article claims	Past damages from marking/notice date, up to six years	No past damages
Patented process claims	Past damages regardless of marking/notice for up to six years	Past damages regardless of marking/notice for up to six years

patent owner can collect past damages only if it has either marked any products covered by its patent with the patent number or provided notice of potential infringement prior to the lawsuit. (35 USC § 287) Many companies do not mark products and rely on method claims for past damages. Thus, even if only method claim liability can be avoided under a divided infringement theory, the value of many patents is diminished because of past damages considerations.

For system claims, note that even if the only effect under *Centillion* of a divided infringement analysis is to shift liability to indirect infringement, this can affect valuation. Inducement requires a showing that the defendant knew about the existence of a patent and encouraged others to practise the patent. Under *Acco Brands Inc v ABA Locks Mfr Co* (Fed Cir 2007), the patentee must establish that "the alleged infringer knowingly induced infringement and possessed specific intent to encourage another's infringement". Even contributory infringement also requires a high evidentiary showing under cases such as *Cross Medical Products v Medtronic Sofamore Danek Inc* (Fed Cir 2005): "In order to succeed on a claim of contributory infringement ...plaintiff must show that defendant 'knew that the combination for which its components were especially made was both patented and infringing' and that defendant's components have 'no substantial non-infringing uses.'"

What this means for system claims is that even if the only effect of splitting the system across different parties is to shift from direct to indirect infringement, it can greatly affect patent valuation due to the greater difficulty in establishing infringement, particularly for any actions that took place prior to the defendant being formally put on notice of the patent. Thus, even if the only effect under *Centillion* is to shift to indirect infringement liability, this might well eliminate all liability for past damages on an inducement theory, depending on the facts of the case. For a patent with a small number of years of remaining term, this could still be a significant factor in determining a reasonable negotiation position.

Determining patent valuation in a divided infringement analysis for design-arounds

One of the aspects of divided infringement that is unclear from the current case law is how a court in the future will treat a fact pattern where a defendant modifies a method or system after being put on notice that this infringes the patent via a licensing offer or a lawsuit. On the one hand, we can take the holdings of the cases at face value and assume that any design-around that outsources a portion of the functionality of a service to a third party will be treated the same regardless of whether the defendant is on notice of the patent. However, *Akamai* includes a stern warning that liability cannot be avoided "simply by [a defendant] designating its agent as an independent contractor if all elements that otherwise reflect an agency relationship are present".

It is not beyond the realms of possibility that a court in the future might impose a heightened scrutiny standard when examining the situation where a party is on notice of a patent and then rearranges its system or process so that other entities practise a portion of the claim elements. Certainly, it is an argument that a patent owner might make in a negotiation to counter design-around arguments.

There are several ways that this unknown risk of heightened scrutiny could be handled in valuation. One way would be to assume that a stronger showing might be required to avoid liability under a divided infringement theory after being put on notice of a patent. Another approach could be to give some partial credit that takes into account this unknown risk. In either case a conservative approach that could be used would be to assume in any negotiation process that principles of equity underlying agency doctrine might require a somewhat higher evidentiary standard to prove that there is no vicarious liability if a company redesigns a service after being put on notice of a patent. As one example, for the purposes of valuation we could pro-rate the chance of successfully making such a redesign argument in litigation, such as by giving a

Figure 3. **Redesign issues under different liability regimes**

Direct liability risk mitigation Often not possible to redesign product/service functionality	**Inducement liability risk mitigation** Often not possible to redesign product/service functionality
Divided liability risk mitigation Often easy in web services to divide work and provide the same functionality to end customer	**Contributory liability risk mitigation** Often not possible to redesign product/service functionality

Figure 4. **Divided infringement liability risk mitigation example**

Divided liability risk mitigation

Review current contracts and consider revisions regarding vicarious liability under agency standard

Consider revising product/service to have subset of features provided via arm's length strategic partnerships

Consider offloading subset of functions to end customers as optional add-ins

Figure 5. **Divided infringement valuation differences between method and system claim liability for split front-end/back-end system example**

	Divided infringement scenario	Effect on liability
Method claims	**Provide back-end service to a commercial customer with the joint actions being required to provide a service that infringes a method claim**	**Potentially no liability under divided infringement even if there is a contract and customer service support**
System claims	**Provide backend system interacting with the system of a customer with the joint portions of both systems being required to provide a service that infringes a system claim**	**Fact-dependent liability:** • **No liability under divided infringement theory.** • **Indirect infringement if beneficial use found.** • **Direct infringement if only "environmental" limitations.**

Figure 6. **Valuation issues associated with divided infringement redesign at different points in licensing scenario**

Redesign of service under divided infringement theory after notice of patent but before substantial litigation	May improve settlement position by providing arguments to counter wilful infringement liability and royalty rates
Redesign of service under divided infringement theory after notice of patent but before substantial litigation, with parallel re-examination proceedings in patent office	Hybrid strategy may be useful to address system claims and improve settlement position
Develop redesign of service before end of litigation under divided infringement theory	Evidence of non-infringing alternatives may improve settlement position

50% credit for a redesign given the potential litigation risk in a marginal case where there is concern that a court might enact a heightened standard for a redesign scenario.

Strategy issues raised by design-around possibilities in divided infringement

As an example, let us assume that a hypothetical company is doing some sort of common practice for a web-based service. The company may have spent considerable labour developing software at the back end. Additionally, customers are used to certain front-end services. This poses several problems for our hypothetical company illustrated in Figure 3 if it becomes concerned about a third-party patent. It is aware that it might be sued or receive a licensing letter sometime in the future. However, it cannot easily redesign the end-user functionality of its service. Moreover, even if it could change the software coding in back-end servers, it may have no idea how a court will construe various claim limitations in the patent of concern. As a result, a conventional design-around approach may be impractical because of the need to provide functions that the customer expects and the difficulties of trying to determine how a court might construe the claims.

We will also assume in this example that our hypothetical company eventually receives a notice letter offering to license the patent. Our hypothetical company now has some serious business issues to wrestle with in terms of its negotiation position. It cannot significantly change the user experience of its service without being afraid of losing customers. A complete redesign of the end-user functionality may thus be out of the question, preventing a conventional redesign of its products.

This is the type of situation where divided infringement liability issues may critically determine the terms under which a settlement is reached between the patent owner and the company at different stages of the negotiation process. Referring to Figure 4, our hypothetical company could take action early on to reduce its liability risk. One of these is to review its contracts with its strategic partners and customers. Existing contracts up for renewal can be drafted to use "softer" language that clarifies that the strategic partner has substantial independence and is not directed or controlled at the level at which the strategic partner chooses specific technical options. Another option would be to seek out a strategic partner to provide an additional subset of functions via an arm's-length strategic partnership. This could be performed either alone or as part of a comprehensive risk mitigation approach. Additionally, in some cases it may also be possible to offload certain functions to an end customer.

Figure 5 illustrates some of the valuation issues in determining a reasonable settlement position after notice, but prior to trial. We shall assume that the potential licensee has reasonable arguments that the system providing the service requires at least two entities in order to practise all of the elements of method and system claims. For method claims, there is clear guidance under *Akamai* on circumstances in which liability for all types of damages can be avoided. For system claims, the case law indicates a highly fact-specific analysis. Under *Uniloc*, there may be direct liability if there are only minor environment recitations of other actors. Under *Golden Hour*, the division may be sufficient to avoid liability. However, *Centillion* teaches that in some cases a divided infringement argument may succeed, while in other situations the analysis flips to indirect liability if a third party has beneficial use of the system. One approach in valuation would be to assign some approximate probability to each outcome for the system claims. The next step for system claims would be to consider how much of the damages are likely to arise from past damages and pro-rate damages by the difficulties that a patent owner would face in proving knowledge and intent for indirect infringement.

Figure 6 illustrates some of the valuation issues associated with attempting to redesign a service at different points in time in a typical licensing scenario. We assume that a company is put on notice of a potential direct infringement of a patent and then decides to redesign a service based on the analysis in the Federal Circuit cases. We begin with the caveat that we are assuming that all actions are taken in a good-faith manner, such that the patent owner has no legitimate arguments that the potential licensee is engaging in a sham in which it still directs and controls a third party to perform various steps either contractually or under an agency theory.

As a practical matter, such a redesign is complicated in the early stages by the fact that there may not be a claim construction. Under US patent law, a court construes the meaning of claim terms in a Markman hearing. However, a possible effect of such a redesign is a reduction of damages. Under US patent law, a finding that a patentee has wilfully infringed a patent can potentially expose a defendant to increased damages of up to three times actual damages, along with an award for attorneys' fees. For our analysis, we are assuming that valuation in a settlement negotiation is driven by downside risks. As such, even if the only effect of a redesign is to provide a good-faith argument that there is no wilful infringement, it could be important in settlement negotiations.

Of course, nothing in performing a redesign of a service would rule out other techniques to increase settlement pressure. A potential licensee could, for example, also file parallel actions in the patent office for the patent owner's patents to be re-examined. This improves arguments against finding wilful infringement. Also, since system claims are the most problematic under a divided infringement analysis, it might be possible to tailor re-examination requests as an additional fallback in case a court finds that there is indirect liability for system claims.

A problem, of course, is that in some situations an effective redesign would require a claim construction, particularly if the language of the claims were muddled and capable of multiple interpretations. However, as most litigation settles before trial, it may still be useful if a defendant can arrive at a potentially non-infringing design based on divided infringement before trial. Even if the design-around is not foolproof, in terms of how a court would rule on it, it may still be useful to have as a negotiation tactic during a pre-trial settlement negotiation. Some courts also permit evidence of non-infringing alternatives to be used a factor in establishing damages.

Action plan A

Understand how developments in divided infringement doctrine will affect patent valuation in the US. Focus on:

- **Higher burden of proof** – the recent case law imposes a higher burden on the patentee to prove that one party controls or directs the other to practise a portion of the elements of a claim, making it easier to avoid infringement liability under a divided infringement analysis.
- **High level of permissible collaboration between actors** – A high degree of collaboration and interaction between actors practising different portions of a claim is possible without rising to the level of an agency relationship or contractual obligation triggering divided infringement liability.
- **System and method claims** – divided infringement doctrine applies to both method and system, but method claim liability is easier to avoid than system claim liability.
- **System claims and beneficial use** – a system with elements divided between two actors may also fall under an indirect infringement analysis if one of the parties beneficially uses the entire system.
- **Design-arounds** – divided infringement doctrine may permit claims for some types of methods and systems to be designed around by appropriate use of strategic partners to provide the same end functionality to customers, thus affecting valuation.

With regard to specific audit and negotiation steps:

- **Contract/strategic partner review** – for a company concerned about minimising potential risk, consider reviewing existing contracts and plans with strategic partners to minimise or eliminate contractual terms that might trigger liability under a divided infringement analysis.
- **Consider outsourcing non-essential functions** – in some industries it may be possible to outsource more functions using arm's-length contracts to reduce exposure under a divided infringement analysis.
- **Patent portfolio audit considerations** – for patent owners the risk of divided infringement reducing the value of a patent portfolio can be mitigated by pursuing a wider variety of claim types and also by considering whether additional marking/notice steps need to be put into place.
- **Valuation in licensing negotiations** – consider divided infringement arguments in patent valuation positions. Method and system claim differences can be addressed within valuation, as well as the availability of potential design-arounds permitted under divided infringement doctrine.
- **Limits to divided infringement doctrine** – keep in mind the agency doctrine aspects of divided infringement doctrine and the possibilities of some future pushback by the courts to prevent sham attempts to avoid liability.

Thus, it may also be relevant in patent negotiations to consider arguments that systems can be redesigned in ways that would invoke divided infringement arguments. Again, reasonable arguments can be pro-rated by a litigation risk factor and put into a valuation used for a settlement proposal.

Patent portfolio audit considerations raised by divided infringement

As we have seen, one of the aspects of recent changes to divided infringement doctrine is that it generates additional confusion for patent owners as to the value of their patent assets. As such, an IP audit might include a review of divided infringement concerns.

One issue in an audit would be to check that a patent family has a range of claim types and scope to hedge its bets and make it harder to design around the claims of a patent. A strategy to file continuation and divisional patents may also be considered.

Patents having only method claims are at greatest risk and efforts should be made, when practical, to beef up a patent portfolio with additional system claims. For high-value patent areas, a more liberal filing of continuations and divisional applications to pursue claims of different scope may be warranted.

Marking and notice issues may also be important. Method claims are most at risk in a divided infringement analysis, thus potentially eliminating rights to past damages unless a marking programme has been in place. Even if there has been a marking policy, rights to past damages for system claims are potentially vulnerable if the liability theory shifts to indirect liability under *Centillion*. As a result, an audit might also consider whether additional notice efforts are desired for individual patents having system claims.

For companies with pending patent applications, an audit may be particularly valuable to identify any concerns for a future licensing programme or the capability to use the patent portfolio to protect the company from competitors.

Consider divided infringement arguments in patent valuation

In summary, divided infringement is important for determining patent valuation. Of particular concern is the potential for US patents to be designed around using arm's-length agreements and other approaches. The case law still is not as clear as desired. Nevertheless, there is sufficient guidance to utilise divided infringement arguments in assessing patent valuation in IP audits, licensing and settlement positions in litigation. *iam*

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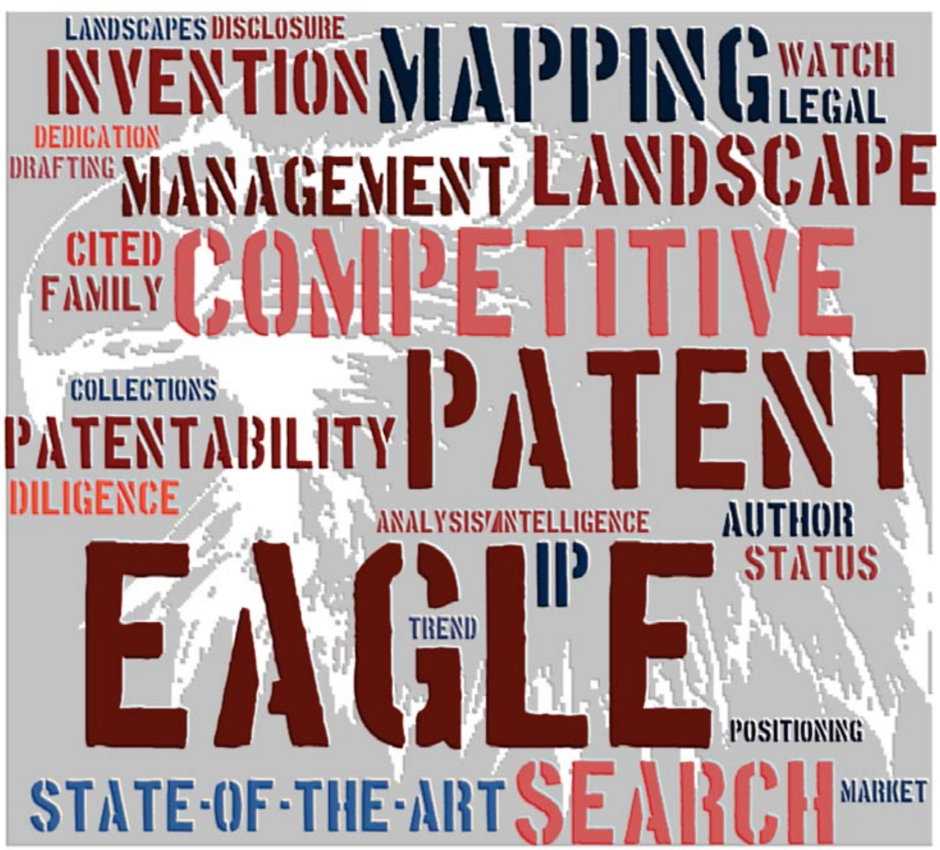

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