

# Innovative Practices for Determining Infringement of Method Patents Performed by Multiple Entities

— Starting from *Dunjun v. Tengda*

Zhang Xiaoyang <sup>1</sup>

On 6 December, 2019, the Supreme People's Court of the People's Republic of China (hereinafter referred to as the Supreme Court) issued the second-instance judgment in *Shenzhen Dunjun Technology Co., Ltd. v. Shenzhen Jixiang Tengda Technology Co., Ltd., Jinan Lixia Hongkang Electronic Product Business Department, and Jinan Lixia Haowei Electronic Product Business Department* (hereinafter referred to as "*Dunjun v. Tengda*")<sup>2</sup>, dismissing the appeal and upholding the first-instance judgment.<sup>3</sup> This case involves several issues concerning claim construction, rules for determining infringement of a method patent performed by multiple entities and calculation of infringement damages. In view of the basic facts of the case, the Supreme Court provided guiding rules for judging these fundamental issues in a patent infringement lawsuit under the existing legal framework. What deserves most concerns is that the Supreme Court determined that the infringing conducts constituted direct patent infringement after comprehensive consideration of technical features of the method patent carried out by multiple actors and how the alleged infringing conducts covered all the technical features of the patented method. The case broadens the courts' rationale for trying disputes over infringement of method patents carried out by multiple entities, and the "irreplaceable substantial role" standard is of great significance in providing reference and guidance for subsequent similar cases.

*Dunjun v. Tengda* is similar to the famous U.S. case, *Akamai Technologies v. Limelight Networks*<sup>4</sup> (hereinafter referred to as *Akamai v. Limelight*) as they both relate to the

determination of infringement of method patents carried out by multiple entities, and the infringing conduct of a single party was determined as direct patent infringement. Therefore, *Dunjun v. Tengda* aroused great concerns and comments among IP practitioners ever since the public announcement of its judgment. Some scholar indicated that "the jurisprudential analysis in this case initiatively sought for a different route in comparison with the known rationale employed in similar U.S. cases."<sup>5</sup> "As for the route of extensive interpretation, the CAFC broadens the application of the 'control or direct' test established in the precedents on the basis of the relations between multiple entities, whereas the IP Court of the Supreme Court establishes the 'solidification of the substantial contents + natural reproduction' test on the basis of the comparison of technical features between the patent and the alleged infringing product. They are different from each other to some extent."<sup>6</sup> Other scholar highlighted that "for the sake of protection of the interests of patentees, it is quite necessary to expand the 'all elements' rule to deal with infringement of method patents implemented by multiple entities. However, such cases are not many in China and no clear rules for determining infringement were given in the judgments. It is still urgent to clarify the infringement of method patents implemented by multiple entities in infringement theories and the extent to which the 'all elements' rule should be extended."<sup>7</sup> It can be said that *Dunjun v. Tengda* prompted the study on patent infringement of method patents implemented by multiple entities again after *Xi'an IWNCOMM Co., Ltd. v. Sony*

*Mobile Communication Product (China) Co., Ltd.*<sup>8</sup> (hereinafter referred to as *IWNCOMM v. Sony*). In order to assist readers in better understanding of such issues for the sake of in-depth discussion, the author intends to first introduce the concept and characteristics of method patents implemented by multiple entities and the difficulties in protecting such patents, make a preliminary analysis of judicial protection routes before *Dunjun v. Tengda*, and then introduce the determination of direct infringement involving method patents implemented by multiple entities on the basis of *Dunjun v. Tengda*, and compare *Dunjun v. Tengda* with *Akamai v. Limelight* in terms of trial rationales and judging rules, and finally expound on the influence and significance of *Dunjun v. Tengda*.

## I. Analysis of characteristics of method patents implemented by multiple entities, as well as difficulties in and current routes for protecting the same

There has been no strict definition of a method patent implemented by multiple entities yet. In judicial practice, it usually refers to a type of method patents which defines in the claims that the participation of multiple entities is necessary to complete its performance. Such type of method patents implemented by multiple parties is common in the field of network communications, which is closely associated with the technical characteristics of this field, namely, “interconnection, information sharing, multi-entity coordination, and persistent innovation”. Over recent years, despite the small number of disputes over infringement of method patents implemented by multiple entities in judicial procedure, all of them attracted great concerns from the IP circle. In addition to such external factors as high damages award and wide influences of the parties, it has been eagerly awaited that definite criteria for determining infringement of method patents implemented by multiple entities can be given through a specific case, and thereby clear guidance can be provided to innovation subjects on how to draft patent applications and enforce their rights.

Under the current legal framework, the underlying reason why method patents implemented by multiple entities are difficult to protect is that such patents have to be performed by multiple entities, and the exploiting conduct of any single actor can hardly meet the requirements on in-

fringement according to the “all elements” rule<sup>9</sup>. On the one hand, the “all elements” rule is an inevitable requirement deriving from the nature of a patent such as “protection in exchange for disclosure” and “public notice”. Without adhering to the “all elements” rule, the scope of a patent claim may be expanded unreasonably, the boundaries of patent rights may be blurred, patent infringement determination may become less predictable for the public, and the reliance interest of the public may be impaired. On the other hand, the liability for infringing a method patent implemented by multiple entities is easy to evade. Even if an invention is substantially exploited, it is difficult for the patentee to enforce its right against the infringers because of the “all elements” rule, which is unfair to the patentee who makes contribution to technological innovation. The conflicts between the public interest and the patentee’s interest, as well as between the legal order and the fairness, in an individual case, are extremely fierce in disputes over infringement of method patents implemented by multiple entities, so that the courts are always entangled in trying such cases. In judicial practice before *Dunjun v. Tengda*, a method patent implemented by multiple entities can be protected based on indirect infringement, in addition to “infringement by testing”<sup>10</sup>. Since it is relatively easy to make a judgment on “infringement by testing”, there is usually no dispute over whether infringement is established under such circumstances<sup>11</sup>. This article is not going to further discuss this type of cases but mainly focuses on and analyzes the application of indirect infringement rules in determining the infringement of method patents implemented by multiple entities.

The Interpretation (II) on Several Issues Concerning the Application of Law in the Trial of Disputes over Patent Infringement (No. Fa shi 1/2016, hereinafter referred to as the Judicial Interpretation (II)) launched by the Supreme People’s Court provides direct legal support<sup>12</sup> for determining certain special conducts as indirect infringement in disputes over patent infringement. In comparison with direct infringement stipulated in Article 11.1<sup>13</sup> of the China’s Patent Law and Article 7<sup>14</sup> of the Interpretation (I) on Several Issues Concerning the Application of Law in the Trial of Disputes over Patent Infringement, the establishment of “contributory infringement” and “induced infringement” as set forth in Article 21 of the Judicial Interpretation (II) does not require the “full” and “direct” performance of all the technical features of a patent by a party who contributes to or induces infringement. Instead, “the requirement is lowered”

especially for “contributory infringement” to such an extent that only the requirements for a product especially made for use in implementing a patent are met<sup>15</sup>. It provides some room for determining infringement of a method patent implemented by multiple entities based on indirect infringement. In *IWNCOMM v. Sony*, the first-instance court just made such a determination.<sup>16</sup> In the following, indirect infringement involving a method patent implemented by multiple entities will be discussed on the basis of the legislative mode and necessary elements of indirect infringement under the China’s Patent Law.

### 1. The legislative mode

Indirect infringement in China adopts a binary mode just like the one in the US, i.e., indirect infringement comprises contributory infringement and induced infringement. Contributory infringement occurs if a party contributed to the infringement of another by supplying goods and/or services required for implementing the patented technical solution, whereas induced infringement occurs if a party induces another’s motivation to implement the patented technical solution or provide necessary skills. Since products provided by a contributory infringer are mostly hardware indispensable for implementing a method patent by multiple entities, contributory infringer may directly participate in the implementation of the method patent. Hence, indirect infringement mainly refers to contributory infringement in cases involving determination of infringement of a method patent implemented by multiple entities.

### 2. A “product especially made for use”

For a product patent, each technical feature in a claim generally corresponds to a physical component. In particular, the distinguishing technical features in the claims that render a patent novel and inventive are often materials, equipment, parts, and intermediates that are especially used for implementing the patent, namely, a “product especially made for use”<sup>17</sup> in indirect infringement. However, for a method patent, the claimed subject matter is a technical method for transforming the objective world, rather than a tool used during the transformation. In this sense, the inventiveness of a method patent lies in the specific way of using the tool, rather than the tool itself. For those patents that cannot be performed without a “product especially made for use”, a corresponding application for a product patent can also be filed for said product, in such a way to further protect the invention. Nevertheless, generally speaking, a method patent in infringement litigation can hardly meet the

requirements of a “product especially made for use”. In judicial practice, there are also cases where a product module is determined as a “product especially made for use” in implementing a method patent. However, if you analyze it carefully, it is easy to tell that the reason why the module of a product is considered as a “product especially made for use” is that the module is embedded with software for carrying out the method. A willful infringer can make such a module not satisfy the “product especially made for use” standard by embedding software having other uses and functions into the same module as well, thereby evading liability for indirect infringement with ease. Hence, as far as a method patent is concerned, it is not common that all the elements of a “product especially made for use” are met, and therefore the liability can be evaded.

### 3. “Knowledge”

“Knowledge” in contributory infringement means that the alleged infringer knows that the material provided by him is a “product especially made for use” in implementing the patent. It is a subjective cognition and shall be provided by external and objective evidence. Generally speaking, an infringement warning letter received by the alleged infringer, as well as a patent licensing offer or a legal document that confirms the infringement before the date of filing of a suit can be directly used to prove the “knowledge”. In *IWNCOMM v. Sony*, although the first-instance judgment did not specifically address whether the defendant’s conduct can be considered as having the “knowledge”, it was found according to the ascertained facts that the plaintiff and the defendant had negotiated about the licensing of the patent in suit before the lawsuit was filed and therefore it can be determined that the defendant has the “knowledge” of the fact that the WAPI functional module combinations are “especially made for use” in infringing the patented method. It shall be noted that in contributory infringement, the “product especially made for use” and “knowledge” are mutually linked. In judicial practice, if products provided by the alleged infringer are the materials, equipment, parts and components or intermediate items especially made for use in the exploitation of a patent, and have no other substantial non-infringing use, it shall be presumed that the alleged infringer, as the manufacturer and seller of a “product especially made for use” has the “knowledge” that such products will be used for performing the patented technical solution. Under such circumstances, it is the alleged infringer that should provide counterevidence. In the absence of the

counterevidence contradictory to the presumption, it shall be determined that the alleged infringer knows that the products he provided are specially used for implementing the patented technical solution.

#### 4. Relationship between indirect infringement and direct infringement

China's patent law and its judicial interpretations do not set forth provisions on whether there can be no indirect infringement without direct infringement. There are mainly three views in this regard, which are "the theory of dependence", "the theory of exception", and "the theory of independence". "The theory of dependence" deems that indirect infringement depends on direct infringement and cannot be established without direct infringement. It is mainly supported by contributory infringement and induced infringement as stipulated in Article 21 of the Judicial Interpretation (II), which originates from Article 9<sup>18</sup> of the Tort Liability Law of the People's Republic of China, stipulating that a person who contributes to or induces infringement shall be held jointly and severally liable for infringement with the direct infringer. Indirect infringement is still a type of joint infringement, and direct infringement is a prerequisite for indirect infringement. "The theory of exception" is essentially identical with "the theory of dependence", but provides exceptions for special circumstances mentioned in the China's Patent Law, that is to say, indirect infringement is in principle premised on direct infringement, but may occur without direct infringement under certain exceptional circumstances. The major reason is that if we strictly follow the rule that "there can be no indirect infringement without direct infringement", some inventions cannot be protected under the patent law since "exploitation of a patent for purposes other than production and business does not constitute infringement" and because of other non-infringement exemptions in the patent law. In these situations, the indirect infringer is directly liable for infringement.<sup>19</sup> "The theory of independence" expands the exceptions in "the theory of exception" to the general rule, thinking that indirect infringement is determined not because of the direct infringement, but because of all the technical features of the patented technical solution being carried out. The establishment of indirect infringement will be independent from whether the exploiting conducts "covering" all the technical features of the patent claims constitutes direct infringement.

"The theory of dependence" and "the theory of exception" are traditionally mainstream theories and can better

balance the interests between the patentee and the public in traditional technical fields. In contrast, "the theory of independence" evolves with the emergence of new technologies, such as network and information technologies, and can better satisfy the needs of the above fields for patent protection by giving comprehensive consideration to their particularities. However, so far, there has not been a theory that is clearly supported by the patent law, judicial interpretations or judgments issued by the Supreme People's Court.

Now turning to *IWNCOMM v. Sony*, the first-instance judgment insisted on "the theory of independence", stating that "it does not mean that the patentee is responsible for proving direct infringement committed by another party. The only thing the patentee needs to do is prove that all the technical features of the patent are performed by a user while using the alleged infringing product according to the pre-set method. Whether said user is liable for infringement has nothing to do with the establishment of indirect infringement." In contrast, the second-instance judgment insisted on "the theory of exception", stating that "since the conduct of the direct actor does not infringe the patent, the actor who commits indirect infringement shall be civilly liable. This is an exceptional circumstance, under which the following requirements shall be satisfied: 1) Where an actor, knowing that a certain product is the raw material, intermediate item, component, or equipment specifically made for use in performing the technical solution of a patent, without authorization of the patentee and for business and production purposes, provides the same to a direct actor; 2) the product especially made for use performs a 'substantial' function in the patented technical solution, that is, the raw material, intermediate item, component, or equipment is indispensable for carrying out the patented technical solution, and plays an extremely important, not a tiny or inferior, role; 3) the product especially made for use has no 'substantial non-infringing use', that is, the raw material, intermediate item, component, or equipment is not a general-purpose or commonly used product, and not used for any other reasonable economic and commercial purposes other than carrying out the patented technical solution; and 4) evidence proves that there is a direct actor who performs the patent not for 'business and production purposes' or the performance falls within the situations stipulated in sub-clauses (3), (4), (5) of Article 69 of the China's Patent Law".

It is noteworthy that during the 4th National Work Meeting on Intellectual Property Adjudication held on 9 July,

2018, Tao Kaiyuan, the vice president of the Supreme People's Court, stated in his report<sup>20</sup> that "contributory infringement in the patent field establishes when an actor carries out all the technical features of the patent claim by means of the product especially made for use in infringement. It does not require that the conducts of the contributed party must constitute direct infringement, nor the contributory and the contributed parties are sued as co-defendants." Therefore, it can be seen that the latest judicial policy of the Supreme People's Court is in favor of "the theory of independence" as to the relationship between indirect infringement and direct infringement.

In general, under the existing legal framework in China, the indirect infringement system is a supplement to the direct infringement system, and is set up to regulate some infringing conducts that cannot be otherwise regulated under direct infringement, provide an option for the determination of patent infringement and enrich the contents of China's patent infringement determination system. Whether indirect infringement applies for a method patent performed by multiple entities needs to be judged on a case-by-case basis.

## II. Basic facts of *Dunjun v. Tengda* and rationale underlying the court's decision

### (I) The patent in suit, alleged infringing technical solution and alleged infringing conduct

The patent in suit relates to a method for easy accessing a website by a web virtual server after web authentication (also known as captive portal), wherein claim 1 reads: "1. A method for easily accessing a network operator's portal website, characterized in that the method comprises the steps of: A. submitting directly, by an underlying hardware of an access server, an unauthorized first uplink HTTP message of a portal service user equipment to a 'virtual web server', the function of which is provided by a 'virtual web server' module of the access server's high-level software; B. virtualizing the 'virtual web server' as the website to be accessed by the user to establish a TCP connection with the portal service user equipment, returning, by the 'virtual web server', a message that contains re-direction information to the underlying hardware of the access server, and sending, by the underlying hardware of the access server, a message redirected to a real portal website Portal\_Server

to the portal service user equipment according to a normal forwarding process; C. upon receiving the re-direction message, automatically initiating, by a browser of the portal service user equipment, an access to the real portal website Portal\_Server." Please refer to Fig. 1 for the technical solution of claim 1.

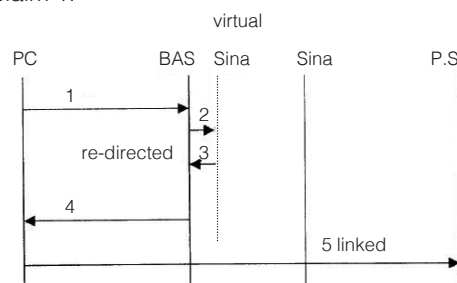


Fig. 1: A schematic view showing the process of captive portal authentication of the patent in suit

According to the claim, the patented method involves three entities (devices), which are an access server comprising underlying hardware and high-level software (a virtual web server), a portal service user equipment (hereinafter referred to as "user computer") and a Portal\_Server (the "P.S" in the figure).

The plaintiff, Shenzhen Dunjun Technology Co., Ltd., sued Shenzhen Jixiang Tengda Technology Co., Ltd. to the court, claiming that Tengda's manufacture, offer for sale, and sale of wireless routers (hereinafter referred to as "alleged infringing product", which corresponds to the access server in the claim) infringed its patent right.

Analysis of technical test results of the alleged infringing product proved that during the normal use under the "web authentication" mode of the alleged infringing product, the method for transmitting a message between the alleged infringing product and the user computer, as well as the Portal\_Server (built into the alleged infringing product) is the same as the one defined in the patent claim, that is, all the technical features of the patent claim are carried out during the normal use of the alleged infringing product. Please refer to Fig. 2 for the process of captive portal authentication of the alleged infringing product. In addition to the Internet access via the "web authentication" mode, the alleged infringing product also provides Internet access with other authentication modes, which do not involve the patented method.

### (II) Rationale underlying the court's decision

The patented method was performed by three entities, and the defendant Tengda is just the manufacturer and sell-



er of the access server. Judging from the facts of the case, Tengda did not use the method patent directly, let alone completely performing the patented method. Since direct infringement occurs when an actor directly performs an infringing conduct stipulated under Article 11 of the China's Patent Law, and such a conduct or its result covers all the technical features of a patent claim, it seems that direct infringement could not be found in the case.

From the perspective of indirect infringement, firstly, the alleged infringing product is a commercial wireless router, and although it has the function of performing the patented method, it can also access the Internet via an authentication mode different from the one used in the patented method. Thus, the alleged infringing product cannot be determined as a product especially made for use in infringement. Secondly, the plaintiff and the defendant did not negotiate on the patent licensing before the lawsuit, and it is hard to presume from a patent gazette on the grant of the patent in suit alone that Tengda knew that the alleged infringing product manufactured and sold could be used for performing the patented method. Hence, the requirements for indirect infringement are not satisfied. After preliminary analysis, the defendant's conducts in this case hardly constituted patent infringement, and the plaintiff's claim should be dismissed.

However, the following facts attracted the court's attention: (1) although the defendant did not perform the patent-

ed method, the alleged infringing product which the defendant manufactured, offered to sell or sold for production or business purposes has the function of directly performing the patented method, and plays an irreplaceable substantial role in the user's reproduction of the patented method by means of the alleged infringing product; (2) the gains obtained by the defendant through manufacturing, offering to sell and selling the alleged infringing product was in close association with the patent in suit, and such gains should have belonged to the patentee; and (3) since the performance of the patented method by means of the alleged infringing product by the end user (the person who operates the user computer) did not constitute infringement in the sense of the patent law, the patentee could gain nothing from the end users who directly performed the patented method in return for its investment on innovation, and the defendant obtained, from the patented method, the profits that should have belonged to the patentee. In this situation, the allocation of interests is seriously out of balance and definitely unfair. Hence, under the principle of fairness, the Supreme People's Court in the second-instance decided that the nature of the alleged infringing conduct needs further analysis.

### (III) Determination of infringement

The Supreme People's Court further expounded on whether the requirements for direct infringement were met in this case on the basis of deeper analysis of the facts, es-

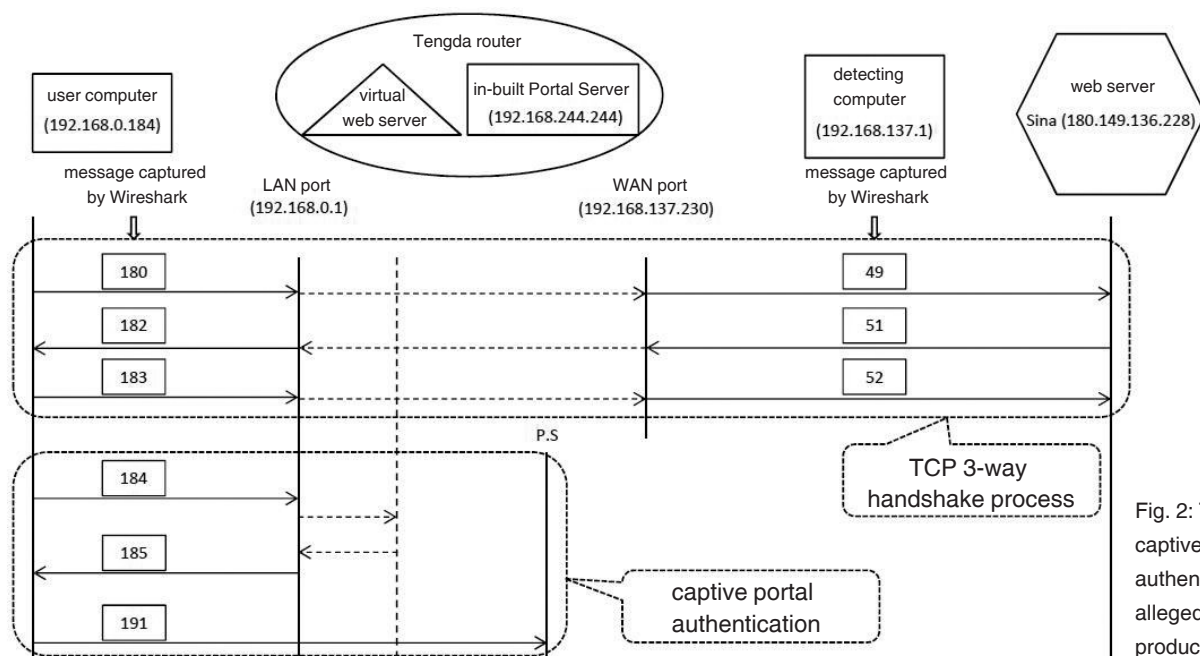


Fig. 2: The process of captive portal authentication of the alleged infringing product

pecially technical facts, of the case: first, analysis was made from the perspective of infringing conducts. The second-instance court stated that “the process of reproducing the patented method by the end user when utilizing the terminal device is only a mechanical repetition of the patented method solidified in the alleged infringing product”. It can thus be seen that as far as the end user is concerned, the input of the address of the website he wanted to visit into the web browser (which is the step defined in claim 2 of the patented method) triggered the automatic execution of all the steps of the patented method by software. The end user neither had the motivation to perform the patented method nor was aware of the execution of all the steps of the patented method. The end user should not be regarded as the entity who performed the patented method, and the conduct of inputting the website address into the web browser’s address bar is the normal use of prior-art technologies, rather than the use of the patented method. Infringement can never be committed by a device or software, but only by a civil subject who performs the patented method by the device or software. Thus, the civil subject who gained profits by solidifying software that executes all the steps of the patented method into the alleged infringing router shall be determined as the entity using the patented method. Accordingly, the defendant’s conduct of solidifying the patented method during the manufacture of the alleged infringing router is not a contributory conduct normally for facilitating or aiding the performance of the patented method, but the direct use of the patented method as stipulated in Article 11 of the China’s Patent Law.

Second, analysis was made from the perspective of “all elements” rule. While manufacturing the alleged infringing router, the defendant solidified the substantial contents of the patented method into the alleged infringing router in the form of software, which was a conduct of carrying out “all” the technical features of the patent. The term “substantial contents of the patented method”, rather than “all the technical features of the patented method”, were used because, on the one hand, the product or device defined in the claims cannot be solidified into the alleged infringing product as software, whereas it is the instructions for controlling or directing the product or device that can be solidified; and on the other hand, a method patent protects a specific method, steps or operating flow, instead of a product device, and where all the technical features concerning the steps or operating flow of the patented method were solidi-

fied in the alleged infringing product in the form of software, the solidification conduct shall be deemed as “covering” all the technical features of the method patent.

As stated above, the defendant’s conduct of solidifying the patented method during the manufacture of the alleged infringing router is considered as direct use of the patented method as stipulated in Article 11 of the China’s Patent Law, and the solidification conduct shall be deemed as covering all the technical features of the method patent. Hence, the defendant’s conduct constituted patent infringement. Accordingly, the following rule is established in *Dunjun v. Tengda*: if an alleged infringer solidifies substantial contents of a patented method into an alleged infringing product for production or business purposes, the solidification conduct or its result plays an irreplaceable substantial role in covering all the technical features of a patent claim, or in other words, an end user can naturally reproduce the patented method during the normal use of the alleged infringing product, it shall be deemed that the alleged infringer performs the patented method and infringes the patentee’s rights - it is thus referred to as the “irreplaceable substantial role” standard.

### III. Comparison between *Dunjun v. Tengda* and *Akamai v. Limelight*

On 13 August 2015, the US Court of Appeals for the Federal Circuit (CAFC) announced the *en banc* judgement in *Akamai v. Limelight* that the conduct of the defendant, Limelight, constituted direct infringement. As being unsatisfied with the decision, Limelight sought for review in the US Supreme Court. On 18 April 2016, the US Supreme Court denied certiorari. So far, the decade-long patent infringement case, also known as “the first cloud computing patent case”, eventually ended, in which the US district courts and the CAFC had been entangled in whether infringement occurred and it constituted direct or indirect infringement.<sup>21</sup>

The patent in *Akamai v. Limelight* was a method patent for delivering web content via the Internet (Patent No. US6108703), which also involved two entities to perform, just like the patent in *Dunjun v. Tengda*. The defendant, Limelight, performed all the steps of the patented method, except “tagging” and “serving”. Meanwhile, Limelight also performed the following conducts: (1) Limelight conditioned its customers’ use of its content delivery network upon its customers’ performance of certain tagging and serving

steps; and (2) Limelight provided its customers with instructions on how to carry out the “tagging” step, and relevant technical support. In *Akamai v. Limelight*, the CAFC further considered the circumstances in line with the “direction or control” standard<sup>22</sup>, that is, an alleged infringer conditions participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method and establishes the manner or timing of that performance<sup>23</sup>, which is briefly referred to as the “condition-timing” standard. The defendant Limelight shall be liable for direct infringement because Limelight conditioned its customers’ use of its content delivery network upon its customers’ performance of certain tagging and serving steps, and established the manner or timing of that performance.

Although *Akamai v. Limelight* and *Dunjun v. Tengda* both involved a method patent performed by multiple entities and the alleged infringing conducts constituted direct infringement, the types of the alleged infringing conducts involved in the two cases were not identical and therefore the reasoning, application of law and source of liability in these two cases were also different. Please refer to Table 1 for details.

**Table 1: Comparison between *Akamai v. Limelight* and *Dunjun v. Tengda***

	<i>Akamai v. Limelight</i>	<i>Dunjun v. Tengda</i>
Infringer	Web service provider	Network equipment manufacturer
Conduct	The conduct of performing a majority of steps of the patented method, and the conduct of “direction or control”	The conduct of solidifying the patented method into the product
Criterion for determining infringement	<div> <div>The “condition-timing” standard</div> <div> <p>1. An alleged infringer conditions participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method<sup>24</sup></p> <p>2. An alleged infringer establishes the manner or timing of that performance</p> </div> </div>	<div> <div>The “irreplaceable substantial role” standard</div> <div>The conduct or its result<sup>25</sup> plays an irreplaceable substantial role in covering all the technical features of the patent claim, or other actor can naturally reproduce the patented method during the normal use of the alleged infringing product</div> </div>
Perspective	Relationship between participants	Role and effect of the alleged infringing conduct
Law application	Expansion of the “direction or control” standard	Reasonable interpretation of the “use” of a patent
Legal theory	Attribution theory/Vicarious liability	Direct infringement
commonness	All elements rule and no-fault liability	

### 1. The alleged infringer and alleged infringing conduct

In *Akamai v. Limelight*, the defendant Limelight was a web service provider, and the conduct it performed included two parts: one was the conduct of “using” the patented method in a common sense, i.e., performing a great majority of steps of the patented method, and the other was the conduct of “directing or controlling” its customer to perform some steps of the patent, which were the conducts the “condition-timing” standard aimed at. In contrast, in *Dunjun v. Tengda*, the defendant Tengda was a wireless router manufacturer, and performed the conduct of solidifying the substantial content of the patented method into the alleged infringing product as software. Hence, the criteria for determining infringement in the two cases are applied to different infringing conducts: the “condition-timing” standard is applicable when the infringing conduct is performing some steps of the patented method without authorization, whereas the “irreplaceable substantial role” standard is against the conduct of solidifying the substantial content of a patented method into a product as software without authorization.

### 2. The judging perspective

In *Akamai v. Limelight*, the CAFC, under the existing divided infringement legal framework in the United States, from the perspective of the relationship between the entities performing the method patent, proposed that when the conduct of the alleged infringer meets the “condition-timing” standard, it can be determined that the alleged infringer “directed or controlled” other participants and directly infringed the patent. Under the guidance of this standard, the court focused on whether the rest steps performed by other actors and the timing for performing the rest steps are dependent on or in certain association with the relevant conduct of the alleged infringer. In *Dunjun v. Tengda*, considerations were given to the elements of direct infringement. From the perspective of the role and effect of the alleged infringing conduct and its result on the “all-element coverage” of the patent claims, the court held that when the alleged infringing conduct meets the “irreplaceable substantial role” standard, the conduct constituted direct infringement. In applying the standard, the court mainly focused on the technical characteristics of the method patent itself, such as the interaction between multiple entities, program-mability, and whether the patented method can be solidified in the hardware in the form of software.

### 3. The application of law

In *Akamai v. Limelight*, the CAFC expanded the appli-



cation of the “direction or control” rule to an extent that if the “condition-timing” standard is met, such a conduct will also be considered as falling within the scope of “direction or control”. Although it is still the attribution theory or vicarious liability theory in the common law that serves as the legal basis, compared with the “agent” or “contract” standard<sup>26</sup> before *Akamai v. Limelight*, the “condition-timing” standard obviously lowers the requirement for the “direction or control” relation. As a result, the definition of infringement under the new standard is obviously broader than that defined under the “agent” or “contract” standard. It can be said that after *Akamai v. Limelight*, it is harder to maliciously evade infringement of a method patent performed by multiple entities.

In *Dunjun v. Tengda*, the Supreme People’s Court directly determined the conduct of “solidifying the substantial content of the method patent into the product through software” as direct infringement, which is a reasonable interpretation of the “use” of a patent as stipulated in the China’s Patent Law. First, judging from the literal interpretation, the solidification conduct does not extend beyond the literal scope of the superordinate concept “exploit” of other specific infringing conducts listed in Article 11 of the China’s Patent Law, and meanwhile, interpreting the solidification conduct as the use of the method patent does not go beyond the public’s expectation. Second, judging from the legislative purpose of the patent law, the patent law is established in a bid to protect patented technical solutions from being used by others without authorization. Many method patents in the network communication field are usually performed by a hardware apparatus under the control of software, the entire process of which is highly automated. Thus, the “use” of such method patents shall not be limited to direct performance of technical solutions, and account shall be taken of whether the patented method is used for production or business purposes. The conduct of solidifying a method patent into a hardware apparatus is essentially a form of unauthorized use of the method patent. Such a conduct should be included in the “use” that is prohibited by the patent law. *Dunjun v. Tengda* provides more effective protection for method patents by extensive interpretation of the “use” of the patented methods.

It can be said that under the existing legal frameworks, the China’s and US courts both reasonably interpreted the precedents or statutory provisions so as to adapt to the demands of patent protection in new technical fields. Different

routes lead to the same goal.

#### IV. Impact and significance of *Dunjun v. Tengda*

First, it broadens protection of a method patent performed by multiple entities. On the premise of adequate analysis of the technical characteristics of method patents performed by multiple entities in the network communication field, and under the principle of fairness, the exclusive rights of such patents is, with reasonable interpretation of Article 11 of the China’s Patent Law, expanded from prohibiting others from directly using the method patent to solidifying the substantial content of the method patent to the hardware device through software, such that infringement can be curbed from the very beginning and the patentees are able to directly sue actual infringers for infringement.

Second, it deepens our understanding of the subject matters of method patents. A method patent protects a specific procedure for transforming the objective world, such as technological processes, operation conditions, steps or flows, rather than the tools used in this procedure. As for whether the alleged infringing technical solution falls into the scope of protection of the method patent, determination shall focus on whether the performance of the alleged infringing technical solution involves the same steps or method defined in the patent claim, rather than on whether a device for performing the alleged infringing technical solution exists. This is the key to accurately apply the “all elements” rule regarding method patents.

Third, it promotes the development of the patent infringement determination system. The ever-changing progress of science and technology determines that the patent infringement determination system must be open and inclusive. The standard established in *Dunjun v. Tengda* has been widely recognized and accepted, which further shows the significance of the rationale of respecting the laws of industrial development and keeping pace with the times in the trial of patent cases. The “irreplaceable substantial role” standard needs to be tested constantly and further improved in judicial practice. It is predicable that in addition to determining whether a solidification conduct constitutes infringement as in *Dunjun v. Tengda*, the “irreplaceable substantial role” standard will be applied in a broader sense.

## V. Conclusion

This article starts from *Dunjun v. Tengda* in an effort to introduce Chinese courts' innovative practice regarding the determination of infringement of method patents performed by multi entities. As mentioned earlier, patent law is an open system. Judicial practices in both China and the United States have shown that the inherent needs of technological innovation inevitably force judges to deal with new issues in individual cases at a higher level. In judicial practice, "law" is just the most general materials that judges use to form their own decisions<sup>27</sup>. Under the existing legal framework, the best way to give an optimum decision is to accurately interpret the laws, fully study the technical facts in each case and explore the reasonable boundary of patent protection so as to promote the technical development and fair competition. ■

The author: Judge of the IP Court of the Supreme People's Court, and Doctor of Engineering

<sup>1</sup> This article represents only the personal views of its author.

<sup>2</sup> The first instance: the Civil Judgment No. Lu01Minchu1481/2018; and the second instance: the Civil Judgment No. Zuigaofaminzhizhong 147/2019.

<sup>3</sup> The court determined in the first-instance judgment that the Tengda's manufacture, offer for sale, and sale of the alleged infringing product constituted infringement, ordering Tenda to cease infringement and awarding RMB 5,000,000 in damages to Dunjun. However, the first-instance judgment did not expound on the legal theory used for determining the nature of infringement.

<sup>4</sup> *AKAMAI TECHNOLOGIES, INC. v. LIMELIGHT NETWORKS, INC.* Nos. 06-CV-11585, 06-CV-11109, Decided: August 13, 2015. Retrieved from <http://www.cafc.uscourts.gov/sites/default/files/opinions-orders/9-1372.Opinion.8-11-2015.1.PDF>.

<sup>5</sup> Li Ke. View on the latest judgment of the Supreme People's Court in dispute over method patent performed by multiple entities. Posted in WeChat Account: Chui IP on 11 December, 2019.

<sup>6</sup> Xu Min. Comparison of rules for patent infringement of patents performed by multiple entities. Posted in WeChat Account: Zhichanli on 12 December, 2019. Retrieved from <https://mp.weixin.qq.com/s/Wtyd-seYTMIdOKS4qGh5ZxQ>.

<sup>7</sup> Dong Ning. Reflection on rules for determining infringement of method patents performed by multiple entities. Posted in WeChat Account: Zhichanli on 9 January, 2020. Retrieved from [https://mp.weixin.qq.com/s/zSi9zsc\\_rFsL4axnugRNCg](https://mp.weixin.qq.com/s/zSi9zsc_rFsL4axnugRNCg).

[com/s/zSi9zsc\\_rFsL4axnugRNCg](https://mp.weixin.qq.com/s/zSi9zsc_rFsL4axnugRNCg).

<sup>8</sup> The first instance: the Civil Judgment No. Jingzhiminchuzi 1194/2015; and the second instance: the Civil Judgment No. Jingminzhong 454/2017 issued by the Beijing High People's Court.

<sup>9</sup> Article 7 of the Interpretation (I) on Several Issues Concerning the Application of Law in the Trial of Disputes over Patent Infringement (No. Fa shi 21/2009, hereinafter referred to as the Judicial Interpretation (I)) reads: the courts, in determining whether the alleged infringing technical solution falls within the scope of protection of the patent, shall examine all the technical features recited in the claim claimed by the patent holder. Where the alleged infringing technical solution comprises technical features identical or equivalent to all the technical features recited in the claim, the courts shall determine that such a technical solution falls within the scope of protection of the patent.

<sup>10</sup> The so-called "infringement by testing" means that a method patent was used in the process of testing a product's function during the Outgoing Quality Checking of the alleged infringing product without the patentee's authorization. The use of the patented method constituted direct infringement.

<sup>11</sup> Although, in practice, there are no great controversies over the nature of "infringement by testing", people do have diversified opinions on liabilities resulting therefrom. Since the liability is not the topic discussed in this article, no detailed discussion in this regard will be presented.

<sup>12</sup> Article 21 of the Judicial Interpretation (II) reads:

Where a party, knowing that certain products are the materials, equipment, parts and components or intermediate items, etc. specifically for the exploitation of a patent, without authorization of the patentee and for business purpose, provides such products to another party committing patent infringement, the people's court shall side with the right holder claiming that the party's provision of such products is a conduct of contributory infringement as prescribed by Article 9 of the Tort Liability Law.

Where a party, knowing that a product or process has been granted patent, without authorization of the patentee and for production or business purposes, induces positively another party to commit patent infringement, the people's court shall side with the right holder claiming that the inducement of the party is a conduct of inducing another party to commit infringement as prescribed by Article 9 of the Tort Liability Law.

<sup>13</sup> Article 11.1 of the China's Patent Law reads: after the grant of the patent right for an invention or utility model, except where otherwise provided for in this Law, no entity or individual may, without the authorization of the patentee, exploit the patent, that is, make, use, offer to sell, sell or import the patented product, or use the patented process,

and use, offer to sell, sell or import the product directly obtained by the patented process, for production or business purposes.

<sup>14</sup> See supra note 9.

<sup>15</sup> In the subjective aspect, it is also required that the contributory infringer “knows” that the product he provides is especially made for use in performing the patent. Induced infringement is predicated on the fact that the inducer, though knowing the presence of the patent, still actively induces another party to commit infringement.

<sup>16</sup> In this case, the patent in suit is a method patent titled “Method for Safely Accessing WLAN Mobile Device and Data Confidential Communication”, which involves three entities (devices) (namely, a mobile terminal MT, a wireless access point AP, and an authentication server). The three entities interact with each other during the performance of the steps defined in the claim. The defendant Sony manufactured and sold a mobile terminal MT (mobile phone) with a built-in WAPI functional module. When the mobile terminal MT interacts with the wireless access point AP and the authentication server AS, all the steps defined in the claims of the patent in suit will be performed. In response to the plaintiff’s claim that the provision of a device especially made for use in performing the patent in suit by the defendant constituted infringement, the first-instance court determined that the defendant’s provision of the product for others to perform the patent in suit for production or business purposes without the plaintiff’s authorization constituted contributory infringement on the premise that the WAPI functional module was determined as the device especially made for use in performing the patent in suit.

<sup>17</sup> Of course, it cannot be excluded that non-structural features, such as the positional relationship and coordination relationship between components render the product patent inventive. Under such circumstances, none of the components are likely to be considered as “products especially made for use”. Meanwhile, however, the technical contribution made by such a product patent does not lie in any components “especially made for use”, but in optimized integration of existing components. Thus, it is unnecessary to extend the protection of such a product patent to a “product especially made for use” in indirect infringement.

<sup>18</sup> Article 9.1 of the Tort Law of the People’s Republic of China reads: One who abets or assists another person in committing infringement shall be liable jointly and severally with the tortfeasor.

<sup>19</sup> Article 119 of the Guidelines for Patent Infringement Determination 2017 issued by the Beijing High People’s Court reads: “where a party, clearly knowing that a certain product is a raw material, intermediate item, component or equipment especially made for use in implementing the technical solution of a patent in suit, without the authorization of the patentee, provides said product to another party who commits a

conduct of patent infringement for production or business purposes, the party’s conduct of providing the product especially made for use constitutes the conduct of contributing another party in committing the conduct of patent infringement as provided for in Article 118 of the Guidelines, however, where the other party performs the patent under the circumstances provided in Article 130 of the Guidelines or sub-clauses (3), (4), (5) of Article 69 of the China’s Patent Law, the said party shall bear civil liability.”

Article 130 of the Guidelines read as follows: “Acts of exploiting other’s patent for personal purpose other than production or business purposes do not constitute patent infringement.”

Sub-clauses (3), (4) and (5) of Article 69 of the China’s Patent Law read respectively as follows: “any foreign means of transport which temporarily passes through the territory, territorial waters or territorial airspace of China uses the patent concerned in accordance with any agreement concluded between China and that country to which the foreign means of transport belongs, or in accordance with any international treaty to which both countries have acceded, or on the basis of the principle of reciprocity, for its own needs, in its devices and installations; any person uses the patent concerned solely for the purposes of scientific research and experimentation; and any person offers information needed in the administrative approval to manufacture, use and import patented drugs or patented medical equipment and specially manufacture and import patented drugs or patented medical equipment for him.”

<sup>20</sup> A report made by Tao Kaiyuan at the 4th National Work Meeting on Intellectual Property Adjudication. Retrieved from <http://www.zhichanli.com/app/events/details/id/285.html>. Last visited on 28 December, 2019.

<sup>21</sup> As for *Akamai v. Limelight*, in February 2008, the jury of the federal district court found that Limelight committed infringement; in April 2009, the judge of the federal district court, following the precedent, allowed Limelight’s motion for JMOL of non-infringement; in December 2010, the three-judge panel of the CAFC affirmed the district court’s grant of Limelight’s motion for JMOL of non-infringement; in June 2012, the CAFC made an *en banc* judgment by 6 to 5 that Limelight induced the infringement; in June 2014, the Supreme Court reversed the *en banc* judgment of CAFC and remanded the case for further proceedings; in May 2015, the three-judge panel of the CAFC found that Limelight was not liable for infringement by 2 to 1; in August 2015, the *en banc* judgment of CAFC unanimously ruled that Limelight directly infringed; in November 2015, the three-judge panel of the CAFC unanimously agreed to remand the case to the district court; in April 2016, the Supreme Court denied Limelight’s certiorari petition; and in July 2016, the district court entered the final judgment

on direct infringement.

<sup>22</sup> In the context of the U.S. case law, two main factors are considered for divided infringement involving a patent performed by multiple entities: one is that there is a “direction or control” relationship between the alleged infringer and other entity, i.e., the alleged infringer directs or controls other entity to perform all the technical features of the patent claim; and the other is a joint enterprise between the alleged infringer and other entity, i.e., the alleged infringer and other entity actually constitute a joint enterprise, and the joint enterprise formed of multiple entities performs all the technical features of the patent claim. As for the standard for the “direction or control” relationship, there were two circumstances before *Akamai v. Limelight*: (1) principal-agent relationship, that is, there is a principal-agent relationship between the alleged infringer and other entity, and an agent on behalf of the alleged infringer performs the rest technical features of the method patent in suit; and (2) the contractual relationship, that is, the alleged infringer contracts with another to perform the steps of the patent in suit, and shall be liable for the conducts conducted by the other party in the con-

tract.

<sup>23</sup> The judgment recites “we conclude, on the facts of this case, that liability under § 271(a) can also be found when an alleged infringer conditions participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method and establishes the manner or timing of that performance.”

<sup>24</sup> The “condition - timing” standard is neither a formal nor official term. The author made some adjustments to the word order, as well as supplements to the contents according to his understanding for easy reading and compression.

<sup>25</sup> It shall be noted that it is not “the product carrying the solidified patent method” but rather the “solidification” conduct itself or its result plays an irreplaceable substantial role in covering all features of a patent claim.

<sup>26</sup> See supra note 24.

<sup>27</sup> Richard A. Posner (2009). Su Li (translator). *How Judges Think*. Peking University Press.