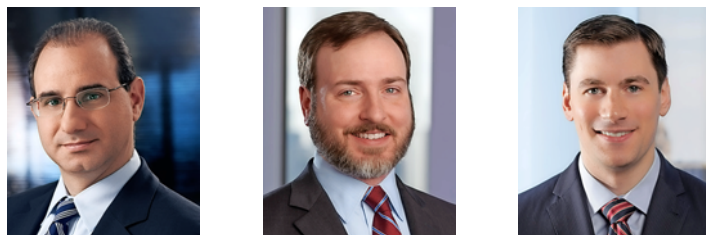


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Licensing

Internet of Things: Manufacturers' Patent, Business Considerations

Ropes & Gray attorneys follow up on a previous Bloomberg Law Insight on the Internet of Things by identifying patent and business considerations for manufacturers entering the “Next Patent War Zone.”



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There is near unanimity among analysts that there will be billions of “things” connected to the internet within the next few years, collectively worth trillions of dollars. Increasing consumer demand for internet-connected smart devices (aka, the “Internet of Things” or “IoT”) presents an attractive opportunity for technology manufacturers to expand their product lines and enhance the functionality of their existing products. Indeed, as more devices used in consumers’ everyday lives become “connected,” it is expected that IoT devices will become even more popular because of their convenience and ability to quickly and easily control them using a smartphone or computer.

Recognizing this opportunity, both long-standing consumer companies and new entrants are seeking to

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connect a wide variety of consumer products to the internet to benefit from the power and potential of IoT. These companies, however, will need to be aware of and plan for the patent and other intellectual property-related risks that are necessarily a part of IoT.

Not only is the potential IoT market massive, but manufacturers are also attracted to IoT because of the relative ease of adding one or more standard forms of connectivity to an existing product. Rather than creating a product from scratch, adding Bluetooth, WiFi, or cellular connectivity to an existing coffee machine, toothbrush, mattress, or even automobile is relatively simple and will allow companies to add new offerings to their portfolio without extensive effort. In particular, converting a non-IoT device into a “smart” device does not require extensive R&D and engineering effort, but rather often requires only a marginal increase in cost by simply adding a communication chip (e.g., WiFi or cellular) to the device along with related control software and hardware.

But there are IP-related risks. Indeed, many of the communications standards for connecting to the internet—cellular, Bluetooth, Zigbee, WiFi, etc.—are encumbered by standard essential patents (SEPs). This means, for example, manufacturers may be liable for

patent infringement (e.g., making or selling) or licensing fees for SEPs that are necessary for practicing a given communications standard. Thus, the cost of upgrading a traditional non-connected product into an IoT-connected device is more than just the marginal cost of the additional components and other costs (e.g., engineering, marketing, certification) required to convert the device into an IoT-connected device. A manufacturer's failure to properly plan and account for these patent-related IoT issues (and protect against them, where possible) may increase a manufacturer's potential liability and reduce its profitability.

In order to best prepare for entering into the IoT space, manufacturers should consider at least three areas to reduce the risk of loss. First, manufacturers should assess the patent royalty and litigation burden, and account for this burden when pricing their products. Second, manufacturers should identify the potential patent holders in the IoT space and determine the best course of action to avoid being dragged into court, which may include taking a license and paying a royalty, entering into a cross-license with other IP holders (probably a less viable option with non-practicing entities (NPEs) in the space), or contemplating a proactive strategy to challenge and invalidate the patents. In doing so, manufacturers should weigh the benefits of joining a patent pool versus engaging in multiple bilateral license agreements. Lastly, manufacturers should consider indemnification (both from suppliers as well as customers that ask for products to become IoT-enabled) as a method to reduce the potential risk of loss for patent-related issues.

Incorporating Anticipated Patent Royalty, Litigation Burden into Product Price Regardless of the approach adopted by a manufacturer, it is nearly certain that there will be IP-based risks and costs associated with IoT products, especially if a product is successful. While a manufacturer may be tempted to price an IoT device by simply adding the cost of the additional components and engineering to create an IoT device (e.g., wireless chip, antenna, and supporting software) to the price of the equivalent non-IoT device, this calculation fails to account for the hidden costs associated with upgrading to an IoT device. These "hidden" costs include the patent royalty (e.g., licensing royalties) and potential litigation burden (e.g., adverse judgment, attorneys' fees, etc.) of incorporating IoT components into a traditional non-IoT device. Furthermore, traditional companies like original equipment manufacturers (OEMs) and component vendors may have different portfolios, sensitivities, and incentives than do NPEs, complicating the exercise of determining potential liability for IoT-related IP. A manufacturer's failure to properly determine and appropriately price the IoT device will likely reduce its profit margin, and for products with low profit margins, may actually lead to a loss.

Here is one example of how these hidden costs can impact profitability. The profit for a manufacturer's legacy non-IoT product, such as a simple thermostat, is typically well-defined. If a standard thermostat sells for \$100, the manufacturer earns a profit after incorporating the cost of the components, the costs of manufacturing, the company's overhead, and any other cost associated with that thermostat. If a manufacturer decides to add IoT functionality, that manufacturer may be tempted to sell the IoT thermostat for \$110 if the cost of

additional components (e.g., wireless chip), engineering costs, and the same profit margin total only \$10 per unit. But by doing so, the manufacturer has failed to account for the possible patent royalty and litigation burden by incorporating these IoT components. For instance, the royalty burden for all 3G SEPs could total 5 percent or more of the thermostat's sales price and the royalty burden for all WiFi or 4G patents likely would be significant as well. These royalty percentages will directly affect the profit margin of the manufacturer, unless properly accounted for.

In contrast to the certainty of additional cost when adding a new element of hardware, the potential costs of patent liability are hard to predict with precision. To properly assess the royalty burden, manufacturers should investigate the market rate for SEP royalties in the IoT field to estimate the potential royalty burden for their IoT products. While this may appear straightforward, royalty rates vary from patent holder to patent holder (indeed, for Bluetooth, most SEPs are offered for license royalty free, but at least one patent holder has aggressively litigated and sought substantial royalties). And some SEP patent holders may seek a percentage of the sales price while others may seek a per unit amount. Moreover, some patent holders offer tiered discounts as the number of licensed units sold increases while others may seek discounts or credits at lower volumes. Additionally, some manufacturers may have substantial portfolios that can be leveraged in cross-licensing arrangements (which can mitigate out-of-pocket royalty expenses), although some licensors (such as NPEs) may have little interest in cross-licensing. All of these factors create uncertainty in determining the royalty burden for any given product. Finally, even if a manufacturer accurately assesses the potential patent royalty of incorporating IoT technology into a non-IoT device, a manufacturer still needs to account for the risk and cost of potential litigation if the manufacturer cannot consummate a license with a particular patent holder.

Consequently, a manufacturer likely will want to pass at least some of the anticipated patent royalty and litigation burden onto the consumer in the form of a price adjustment. Determining the precise amount, however, may be challenging. On one hand, increasing the price by too much could price the product out of the market. Moreover, the royalty burden is actually an *expected* or *anticipated* royalty burden, so passing the maximum royalty burden to the consumer may overestimate the *realizable* royalty burden, and thus inappropriately reduce the consumer demand for the product by overcharging.

On the other, not increasing enough could fail to cover sufficiently the royalty and litigation burdens and leave the manufacturer at risk to cover the difference. On top of these considerations, some manufacturers may operate and sell in jurisdictions with lower IP barriers, resulting in an uneven playing field for different manufacturers and making the IP component of differential pricing even more pronounced. Finally, the potential risk of assessing the potential patent royalty and litigation burden may create undesired evidence regarding value in subsequent litigation. Thus, if the manufacturer mistakenly overvalues the royalty burden, the manufacturer may be required to pay a higher royalty in litigation once this evidence is considered.

Ultimately, while it is difficult to accurately assess and price an IoT device because of the complicated pat-

ent issues that may arise, careful advanced investigation and planning will reduce the manufacturer's risk of loss in entering the IoT field.

Obtaining Licenses for IoT Patents As described in our prior article, *Internet of Things: Next Patent War Zone* (95 PTCJ 311, 1/12/18), new patent pools are anticipated to emerge as IoT technologies become more prevalent. Based on a manufacturer's analysis of the patent royalty and litigation burden, that manufacturer may determine that joining a patent pool is the most cost-effective path forward.

In general, joining an established patent pool may reduce risk, provide a degree of certainty and stability, and establish an estimated royalty *before* the product is sold, which allows a manufacturer to more accurately assess the royalty burden of a product during pricing. This places the manufacturer in a stronger defensive position, because the expected burden may be passed on to the consumer from the beginning, avoiding a subsequent price increase. Joining a patent pool before large-scale production also may allow a manufacturer to negotiate as a smaller entity, thus potentially reducing an adverse party's interest in contentious negotiations as it may for a deep pocket party. Moreover, proactively joining a patent pool may avoid prolonged negotiations and associated expense.

But joining a patent pool does not eliminate potential liability, because no single patent pool will include all patents essential to a standard. For example, HEVC Advance, MPEG LA, and Velos Media (to name a few) each market themselves as having H.265 SEPs available for license. But other non-pool patent holders and NPEs likely have SEPs as well, and at least some of these entities will require separate licenses through bilateral negotiations. These bilateral negotiations will likely be more costly in terms of business disruption and legal expenses than joining a pool.

Negotiating Indemnification and Insurance Agreements Manufacturers often play the role of middleman between suppliers of components and end-user consumers. The fusion of the traditional product with a networking chip to create an IoT device increases the number of parties to which the manufacturer may be liable, both for patent infringement and other legal liability, as

well as the number of companies that could owe an indemnification obligation to the manufacturer.

While chip suppliers sometimes have SEP licenses, these licenses often include field of use restrictions and carve-outs that may exclude a manufacturer's IoT device. In such situations, a manufacturer may need to negotiate its supply chain contracts to require the suppliers of IoT components (e.g., WiFi chip) to indemnify the manufacturer for patent infringement (or other liability, such as products liability for a malfunctioning IoT component). However, negotiating and insisting on indemnification by a component supplier could increase the cost of the supply contract or create a negotiation impasse with that supplier. Similarly, a manufacturer should consider whether to indemnify its downstream customers (e.g., big box retailers) for claims of patent infringement relating to the IoT aspects of its products. These indemnification obligations—both up and down the chain—need to be taken into consideration when pricing IoT products.

Lastly, while not directly related to patent infringement, manufacturers should consider other potential liability when developing IoT devices. Such liability can be related to security, including theft of personal or sensitive data (e.g., wearables tracking biometric data, GPS, cameras or motion sensors within a home) or the creation of hazardous situations (e.g., vehicle hacked causing loss of control, connected medicine provider failing to give critical medicine to a patient, or an oven or toaster remotely activated and overheating, causing fire). Thus, manufacturers should consider seeking indemnification (other than for patent infringement) or insurance provisions in supplier contracts.

Conclusion IoT is here to stay. While powerful, connected IoT devices can be lucrative for manufacturers, manufacturers must consider the IP ramifications of expanding outside of their traditional field of expertise and the hidden costs associated with these devices. By pricing IoT devices appropriately, obtaining licenses or joining pools to reduce patent infringement liability, and seeking indemnification from component suppliers, a manufacturer will be well-suited to profit in IoT, the Next Patent War Zone.