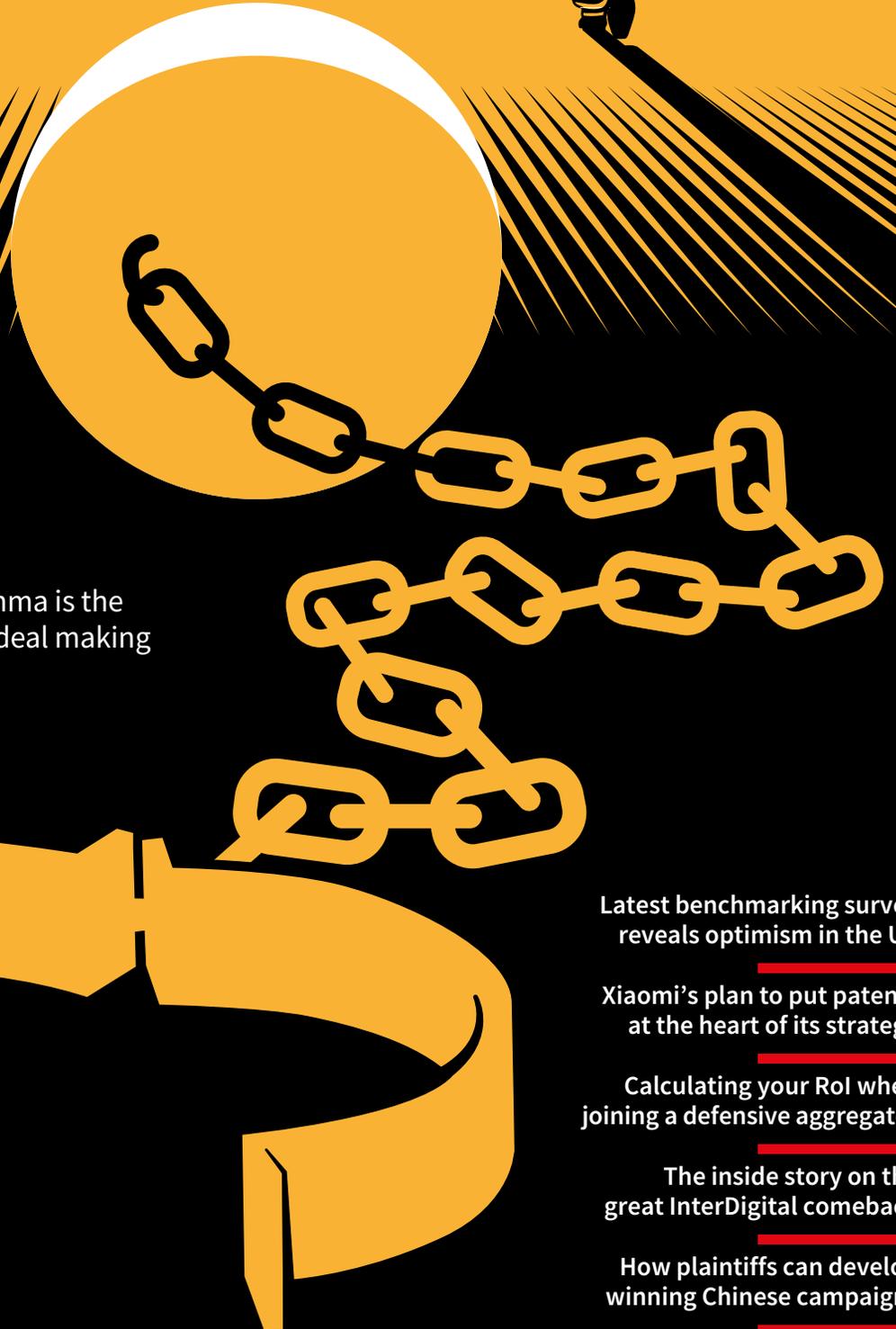




Choose freedom

Why solving the prisoner's dilemma is the key to a successful future for IP deal making



Latest benchmarking survey reveals optimism in the US

Xiaomi's plan to put patents at the heart of its strategy

Calculating your RoI when joining a defensive aggregator

The inside story on the great InterDigital comeback

How plaintiffs can develop winning Chinese campaigns

Join a defensive aggregator and what is your financial return?

Defensive aggregator models continue to evolve to address the challenge posed by patent assertion entities. While determining the financial return on these can be challenging, there are solutions – as a work-through of the LOT Network proposition demonstrates

By Kent Richardson and Erik Oliver

Companies are unlikely to participate in any defensive aggregator solution if the benefits are unclear. Return on investment (ROI) helps to drive decision making and secure buy-in from other members of the executive team. The more quantifiable the ROI, the better. We use the LOT Network as a case study for ROI calculations for a defensive aggregator.

The LOT Network is one of the newer defensive aggregators and has a less well-understood ROI. Patent assertion entities (PAEs) are companies which do not make or sell products or services, but instead buy patents and sue companies for licence fees. The irony is that 80% of their patents were originally bought from corporations. The LOT Network is designed to stop this problem at the source.

The authors spoke with LOT members and potential members to better understand the potential ROI challenge. Patrick McBride, executive senior director of patents at Red Hat – an early LOT member – said: “The ability to quantify the return of a sometimes seemingly abstract investment like a LOT Network membership is significant. We need to give executives a financial figure against which to make decisions. We also need a model that is easily understood, even outside the IP world.”

We set out to quantify the returns by analysing the pros and cons of membership and proposing a non-partisan financial model. For many – but not all – companies, the LOT Network appears to have a positive ROI.

Members of the LOT Network agree to license any of their patents to other members if their patents fall into the hands of PAEs. Therefore, if you are a LOT Network member and sell a patent to a PAE, all the other LOT Network members receive a fully paid-up licence to that patent. As more members join, the benefit of LOT Network membership should thus increase. The LOT Network appears to be having early membership success, with Canon, Cisco, Google, GM, Lenovo, Red Hat, SAP, Slack and numerous other companies joining, representing a reported 654,000-plus patent assets. We have taken a deep look into the LOT Network with the objective of determining whether and when membership might make strategic and financial sense – and when it might not.

One of the bigger challenges in deciding whether to join any defensive aggregator is estimating the ROI. The strategic fit of a defensive aggregator may be clear to you as the individual responsible for recommending PAE defence strategies. Explaining that fit to the broader IP team, the finance team and corporate executives may

be more difficult. A financial model can help to explain the opportunity. Against this background, we developed a financial model to test whether and when the LOT Network has a positive return.

The LOT Network benefits members in two primary ways:

- member-specific benefits – for example, PAEs cannot use patents bought from another member against your company; and
- industry-wide benefits – for example, PAEs can no longer find any viable corporate patents to buy and assert.

LOT is a long-term investment, which we find interesting. The highest returns from membership are five-plus years out, but this timeframe can be challenging to model and incorporate into a company’s patent strategy. Figure 1 summarises the key components of our model.

The remainder of this article provides context for the model by describing the origins of the LOT Network, its rationale and its operation. We then present the model we developed to determine the financial value of LOT Network membership. We have released the model under the Creative Commons licence and it can be downloaded from our website at www.richardsonoliver.com.

An example defensive aggregator – LOT Network

Even though there are indications that the PAE threat has fallen since the introduction of *inter partes* reviews in 2012, and that numerous federal and Supreme Court decisions have negatively affected patent asserters, PAEs remain a real issue for operating companies. For example, despite a tougher environment, the number of unique corporate defendants in PAE suits has remained at approximately 2,700 since 2010 (See “2015 report: NPE litigation, patent marketplace, and NPE Cost”, RPX, page 8, Chart 5).

The LOT Network was founded to curb PAEs by limiting their patent pipeline. Surprisingly, PAEs acquire 80% of their patents from operating companies (see “Patent litigation & market trends”, Dan McCurdy, RPX, IP Counsel Cafe, April 2015, slide 5), even though it seems counterproductive for corporations to supply patents to the entities which sue them. The problem is an example of the prisoner’s dilemma in game theory. In a world where only one company sold to PAEs, that company would be advantaged. However, if many companies sell patents to PAEs, then everyone is worse off. The problem is compounded by a timing component:

companies sell patents when times are tough and tend to sell them to the highest bidder.

ROL Group has researched when companies sell patents, particularly to PAEs. In ROL Group's papers "What's inside IV's patent portfolio" (*LAM*, Issue 66) and "How Intellectual Ventures is streamlining its portfolio" (*LAM*, Issue 77), we showed that distressed or bankrupt companies are some of the biggest sellers of patents to Intellectual Ventures (IV). ROL Group proposed that, with a limited number of cross-licences in your industry, you could substantially reduce your long-term threat from IV.

As illustrated by Figure 2, ROL Group found that, due to the size of a few large deals, most of IV's assets come from a handful of companies: 37% came from 22 companies which sold over 100 assets each to IV, with a further 60% coming from approximately 100 companies. This helps to highlight the potential value of the LOT Network in addressing future large patent aggregators. Although IV has announced that it will no longer be buying patents, other large PAEs continue to buy patents and the problems remain.

More recently, we analysed financial data from corporate patent sellers and found broader correlations between a company's financial health and its inclination to sell patents to PAEs ("When do operating companies

sell their patents," August 16 2016, IPWatchdog). We looked at a collection of large-scale corporate patent sales to PAEs which had taken place in the last 15 years and analysed the company's stock price performance compared to that of the market. We found that 78% of large patent sales occurred when companies underperformed the QQQ ETF, tracking the Nasdaq 100 index by more than five percentage points. Few sales (under 5%) occurred when the company outperformed the stock market by five percentage points.

How does LOT Network work?

By joining the LOT Network, you agree to provide all other members with a licence to your patents if, and only if, those patents fall into the hands of a PAE. All traditional uses of patents – suing other companies and selling them – remain unaffected.

All patents owned by a member are covered by the agreement. Members can leave the LOT Network – the existing obligations regarding their existing patent assets remain, but no new obligations accrue. Importantly, the obligation is non-terminable for any assets owned while a member, to prevent gamesmanship whereby companies enter the network and then leave to accomplish PAE sales. The departing member loses the benefits of the LOT Network licence with respect to any transfers to PAEs after the date on which it withdraws from the LOT Network. The annual membership fee is calculated based on the company's annual revenue and caps out at \$20,000 a year.

It is convenient to think of the LOT Network licence as a springing licence, although that is technically inaccurate. Legally, the rights conferred by the LOT agreement are structured as a conditional, present licence grant together with a release, waiver and immunity to better withstand a post-bankruptcy transfer of a member's assets to a PAE. We did not model the risk of failure of the agreement itself – or this provision. Nor did we model any challenges from a LOT Network member facing an intransigent PAE demanding proof that the member is entitled to the LOT Network licence. However, the model results can be modified to account for such risks.

Financial implications: when does it make sense to join?

The model gives an estimate of the ROI while balancing ease of use with accuracy. The model should provide a framework to easily explore what-if scenarios by adjusting key company-specific information and exploring the underlying assumptions.

The primary components of the model and the basic flow are shown in Figure 3.

Specifically, the benefits (or return) primarily come from reduced corporate-sourced PAE risks. Over time, as the LOT Network grows, members should face fewer PAE lawsuits using corporate-sourced patents. The cost (or investment) is often quite low and is made up of the membership fees (up to \$200,000 over 10 years) and lost sales to PAEs due to LOT Network encumbrance. Because many companies do not sell to PAEs, many will find a strongly positive ROI from the model. We have included the option to show the impact of LOT Network membership on sales to other corporations; we believe that the impact on pricing of sales between companies is negligible, but have included the option to

FIGURE 1. Model summary



FIGURE 2. Distribution of Intellectual Ventures' patent asset sources

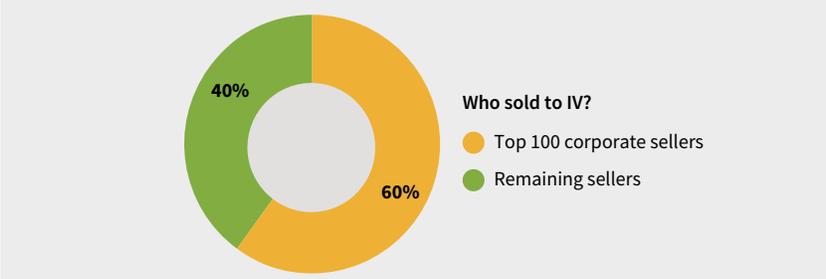
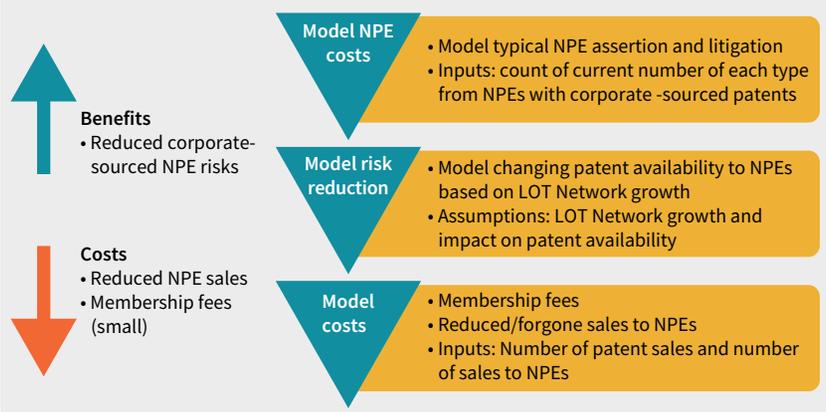


FIGURE 3. Key components of ROI and model flow



model this (discussed below). We did not model the risk that your company becomes a PAE; the model can be adjusted to include the expected value of this scenario.

As a rule of thumb, companies that do not sell to PAEs, but either currently face corporate-sourced PAE costs or expect to, will see a positive benefit from LOT participation. For example, a company with \$200 million a year in revenue which sees one PAE litigation with corporate-sourced patents every year would still see a positive ROI over 10 years, even if it made up to two sales to PAEs in that same period.

Quantification of risk and risk reduction

The starting point of the model is the costs associated with PAE risk: what do PAE assertions and litigations cost? These costs are what the LOT Network is trying to reduce (your return, in the ROI model). First, we split the risk into corporate-sourced PAE risk (patents which were previously owned by a corporation) and non-corporate-sourced PAE risk. Because the LOT Network primarily applies to corporate entities, joining mitigates only corporate-sourced PAE risk.

To quantify the cost of PAE assertions, we need to estimate the average cost of a PAE assertion or litigation. Each actual interaction with a PAE is complex and the likely resolution and associated costs involve a complex, multi-dimensional array of different factors. Two example factors are shown on the left-hand side of Figure 4: revenue impact and PAE sophistication. For modelling simplicity, we split the PAE risk into two cost categories: lower-cost assertions and higher-cost litigations.

Next, we estimated an average lifetime cost associated with the two scenarios. For the lower-cost category, the assertion is estimated to cost the company between \$100,000 and \$200,000. For the higher-cost category, the litigation is estimated to cost the company between \$1 million and \$3 million. These costs are averages and may change over time. In the PAE assertion costs, we include not only external fees (eg, attorney and experts, and any fees paid to PAEs), but also internal costs (internal engineering and legal time spent on the matters). This is necessarily an average; for example, some assertions cost nearly nothing (eg, receiving a demand letter that your company does not respond to), while others result in a settlement. Similarly, some litigations are resolved early in the pleadings, but others are taken all the way through trial, compounding the costs involved. When using the model, you should adjust these numbers to reflect an average rate for your company in each of these scenarios. To present a more conservative ROI model, the default values for these assumptions have been set to the lower end of the above ranges.

To estimate the PAE risk, a company can count the number of PAE threats received in the last year in which the patents involved in the threat were corporate-sourced. If the answer is none, consider whether the model would be more representative by using an estimate of the number of threats anticipated with company growth over the coming years. Fractional assertions can be handled by the model (eg, one assertion every four years is 0.25 assertions). Similarly, if the number of assertions or litigations changes in frequency, an average over several prior years may be more representative.

The model quantifies the value of the risk reduction from the LOT Network. It includes an important

simplification: the risk reduction correlates directly with the total number of patents covered by the LOT Network. For example, if the LOT Network covers 1% more of the patents owned by corporations, then the PAE risk declines by 1%. We compared the number of issued US patents covered by the LOT Network (over 148,000 as of April 1 2017) with the number of in-force US patents (approximately 2.5 million) to develop the model. This approach overestimates the number of patents owned by corporations, resulting in slightly lower risk reduction values – corporations own more than 90% of US patents. We believe that these assumptions reasonably average the risk reduction that any given company may see from LOT Network membership. Since PAE risk can come from a broad range of corporate patent sellers, this approach aligns with an intuition that there is value (and risk) from a wide array of corporate-sourced patents. For example, a WiFi patent initially may have been relevant only to network-equipment companies, but may now be relevant to makers of smartphones, gaming consoles and automobiles.

This assumption makes the model easier to use and understand, but the trade-off is decreased accuracy. More complex risk reduction calculations could be used to refine accuracy. For example, modelling the potential PAE risk reduction from specific patent owners in your industry might provide greater accuracy. (Then again, patents relevant to your business may not come from your industry, as the above WiFi patent example suggests.) Whether you use the simplification we propose to model the risk or build your own industry-specific model, we recommend that you spend time considering how your risk may be reduced as LOT Network coverage increases or decreases.

To model the reduction in the cost of PAE assertions, we made the following additional assumptions:

- The growth of the number of patents under the LOT Network is assumed to be slower initially and then increases (years one to four versus five-plus). The opposite is also a possibility.
- All companies are equally susceptible to PAE risk (if you have one assertion per year, your level of risk is the same as that of someone else with one assertion per year).
- The total pool of issued patents was treated as a constant (eg, expiring and newly issuing patents are balanced in the model timeframe).
- We based the model on a 10-year period because the benefits of LOT Network membership are seen most strongly over time as the network grows and as the

FIGURE 4. Estimating the costs of NPE risk

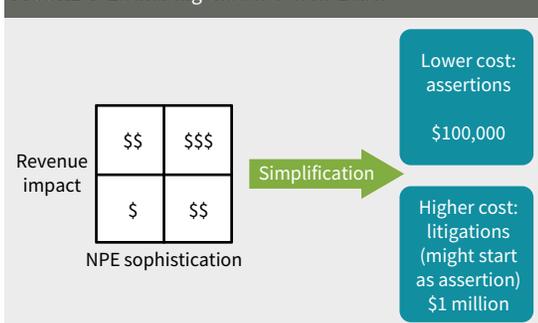


TABLE 1. How results are presented in the model

ROI estimates – your company’s name here			
	Baseline assumptions	50% greater LOT Network growth; 50% higher resolution costs for assertions and litigations	50% slower LOT Network growth; 50% lower resolution costs for assertions and litigations
10-year cash basis (2017-2026 inclusive) (all amounts in \$M)			
Total reduction in corporate-sourced NPE problem due to LOT Network	\$1.35	\$2.74	\$0.44
Total LOT Network membership fees	\$(0.17)	\$(0.17)	\$(0.17)
Total lost opportunity for sales to corporations due to LOT Network participation	\$-	\$-	\$-
Total lost opportunity for sales to NPEs due to LOT Network participation	\$-	\$-	\$-
Savings [cash basis]	\$1.18	\$2.58	\$0.27
ROI [cash basis]	707%	1538%	161%
Total corporate-sourced NPE problem	\$6.70	\$10.05	\$3.35
Estimates – NPV basis – 10-year view (2017-2026 inclusive) (present dollars)			
Cost of capital	15%		
(All amounts in \$M)	Base ROI scenario	High ROI scenario	Low ROI scenario
NPV reduction in corporate-sourced NPE problem due to LOT Network	\$0.56	\$1.11	\$0.19
NPV LOT Network membership fees	\$(0.08)	\$(0.08)	\$(0.08)
NPV lost opportunity for sales to corporations due to LOT Network participation	\$-	\$-	\$-
NPV lost opportunity for sales to NPEs due to LOT Network participation	\$-	\$-	\$-
Savings [NPV]	\$0.48	\$1.03	\$0.11
ROI [NPV]	579%	1250%	129%
NPV corporate sourced NPE problem	\$3.29	\$4.93	\$1.64

springing licence protects your company from later transfers to PAEs.

- We did not model the impact of other counter PAE strategies or other defensive aggregator memberships (eg, AST, OIN, RPX or Unified Patents) that you may have. The impact of these other strategies and defensive aggregators is an important consideration in your overall strategy.

The value of all the future risk reduction from the LOT Network is calculated both on a cash basis and in today’s dollars as a net present value (NPV). We used a 15% cost of capital in the model, which may be high for your company (see Table 1).

Costs of joining a defensive aggregator – LOT Network example

To determine ROI, the cost or investment side needs to be calculated. For the LOT Network, the costs can be more difficult to determine because members give up more than their membership fee (Open Invention Network has a similar complex cost). In the case of the LOT Network, the investment that a member is making is the annual fee plus the impact that the LOT Network encumbrance puts on its patent portfolio.

After determining the potential value of the PAE risk reduction from corporate-sourced patents, we estimate the cost of membership. The LOT Network is one of the least costly defensive aggregators, with annual membership fees scaled according to revenue and topping out at \$20,000 for companies with more than \$1 billion in revenue. Although membership fees are small, companies may be concerned about devaluing

their patents due to the encumbrance – specifically, the potential loss of future sales to other corporations or PAEs. The model helps you to quantify these costs.

The starting point of the model allows you to model your current (or expected) patent sales behaviour. Both corporate-to-corporate and corporate-to-PAE patent sales can be modelled. If your company does not sell patents or never sells to PAEs, LOT Network encumbrance should have minimal impact.

In our experience, for corporate-to-corporate patent sales, there is negligible impact from an encumbrance such as the LOT Network because companies generally do not buy patents with the expectation of turning around and selling them to PAEs. The corporation’s value proposition for purchasing a set of patents is typically to be able to assert them against another corporation and rarely to start a significant PAE-like licensing programme. LOT encumbrance does not prevent the corporation from asserting. Thus, the corporate purchaser cares primarily whether a specific company or group of companies is available to license. Therefore, the value to the buyer remains because the buyer never valued a future PAE assertion scenario.

LOT Network encumbrance does allow a member to run licensing programmes with its patents. However, if over 50% of such member’s revenue comes from licensing outside its industry, the member may be deemed a PAE, at which point the patents are considered licensed to LOT members.

Additionally, in our experience of helping clients to buy and sell over \$75 million in patents, the price of patents already reflects some assumed encumbrances, licences (eg, cross-licences, obligations of standard-

setting organisations, license-back) and significant risks and assumptions about enforceability. This further informs our belief that LOT Network encumbrance would not materially affect the price of the patents in a corporate-to-corporate sale. However, we have heard arguments that the LOT Network would have some impact on the price. Our data and experience say otherwise; but to allow for greater flexibility in the model, we have included the ability to adjust the amount of impact on the sale of corporate patents (see the assumptions sheet).

For modelling the costs of LOT Network membership on a member's sales of patents to PAEs, we made the following assumptions:

- After a large enough portion of the market has joined the LOT Network, the sales will not occur. Early in the LOT Network's growth, PAEs may still be willing to buy LOT Network-encumbered patents.
- As the network reaches a certain point, too much of the potential licensing market for the patent would already be licensed if a PAE bought the patent, because the licence in a LOT Network agreement would be active. For those with a marketing background, this means that the serviceable addressable market for the PAE becomes \$0.
- We used the percentage of patents covered by the LOT Network as a proxy for market coverage and assumed that PAEs will stop buying from LOT Network members when the LOT Network covers 30% of the US patents. Some of the companies and PAEs that we spoke to suggested that 30% was too low, but we prefer to offer a conservative model.
- Before hitting the PAE market threshold, for the purposes of the model, PAEs buy patents from LOT Network members at full price and after that threshold not at all. This model for PAE behaviour again trades simplicity for accuracy. It may be that PAEs will in fact buy LOT Network-encumbered patents provided that a handful of large companies are not covered.

Additionally, any potential lost sales need to be considered in the context of the actual market for buying and selling patents. Patent sales of \$100 million-plus are exceedingly rare and becoming even rarer. The patent market is well established – Bloomberg now publishes a quarterly report on average asking prices, buyers and sellers. Prices have fallen to a much lower and narrower range than even five years ago, decreasing by more than 50% over this period since the days of the Nortel and Motorola high-water marks.

We modelled a typical PAE sale and a typical corporate sale based on the sales and purchases we have seen. We used our database of over 4,000 patent packages for sales covering over 90,000 patent assets to help determine the price of a patent sale. We supplemented the database with a real pricing study ROL Group performed of the closing price of 128 patent purchases. Thus, a modelled typical sale will not look like some notable public deals, such as the Nortel patent sale, because those sales are not representative of the current market for patents. We considered several patent sales scenarios and modelled a typical PAE patent sale as including approximately 13 to 14 patents and selling for \$1.7 million (a corporate sale is

modelled differently, but has similar results). This typical PAE sale represents a mix of patent sales types: small, focused sales; large sales; and privateering. In the current environment, the PAE sale price may be too high, but we assume that over the 10-year period of the model, those prices may come back. For the typical corporate sale, we used our data to find a typical sale with a typical number of patent assets and price.

ROI estimates and comparisons

Overall, the LOT Network appears to provide positive long-term ROI for many companies facing PAE problems. Returns exceeding 300% are common where companies face more than a couple of PAE threats per year. Two primary factors drive the positive ROI. First, even a small reduction in PAE threats quickly exceeds the membership fees. Second, most potential LOT Network members sell few patents to PAEs; thus, the lost opportunity cost is small. For companies that receive no PAE threats, the ROI for membership will be low and other reasons for joining should be considered (see below). If your company regularly sells significant numbers of patents to PAEs, the ROI for the LOT Network is unlikely to be positive. However, a handful of sales over the 10-year model is unlikely to make the ROI negative for companies with a moderate number of PAE assertions and litigations.

Table 2 shows the results based on inputs for your company compared to two other companies: a storage company (StorageCo) and a social networking company (SocialCo).

Other considerations when joining a defensive aggregator

The financial model does not cover all of the reasons why one may or may not join a defensive aggregator. When using a financial model to help make decisions such as these, it is important to step back and consider other implications.

“If your company regularly sells significant numbers of patents to PAEs, the ROI for the LOT Network is unlikely to be positive. However, a handful of sales over the 10-year model is unlikely to make the ROI negative for companies with a moderate number of PAE assertions and litigations”

In the process of building this model, we interviewed several companies to find out why they have or have not joined the LOT Network. The PAE risk reduction was the primary and clearest-cut reason for joining. However, there were other common answers:

- Eliminate future PAE risk from patents from specific companies already in the LOT Network – membership also helps to reduce industry risk from peers already in the LOT Network.
- Obtain positive returns easily due to low membership fees – investment is likely worthwhile.

TABLE 2. How results for your company can be compared with other example companies

Comparison			
Estimates – cash basis – 10-year view (2017-2026 inclusive)	Your company's name	StorageCo	SocialCo
(All amounts in \$M)			
Total reduction in corporate-sourced NPE problem due to LOT Network	\$1.35	\$4.50	\$4.95
Total LOT Network membership fees	\$(0.17)	\$(0.17)	\$(0.22)
Total lost opportunity for sales to corporations due to LOT Network participation	\$-	\$-	\$-
Total lost opportunity for sales to NPEs due to LOT Network participation	\$-	\$-	\$-
Savings [cash basis]	\$1.18	\$4.34	\$4.73
ROI [cash basis]	707%	2589%	2118%
Total corporate-sourced NPE problem	\$6.70	\$22.34	\$24.57
Estimates – NPV basis – 10-year view (2017-2026 inclusive) (present dollars)			
Cost of capital	15%		
(All amounts in \$M)			
NPV reduction in corporate-sourced NPE problem due to LOT Network	\$0.56	\$1.86	\$2.05
NPV LOT Network membership fees	\$(0.08)	\$(0.08)	\$(0.11)
NPV lost opportunity for sales to corporations due to LOT Network participation	\$-	\$-	\$-
NPV lost opportunity for sales to NPEs due to LOT Network participation	\$-	\$-	\$-
Savings [NPV]	\$0.48	\$1.78	\$1.94
ROI [NPV]	579%	2162%	1766%
NPV corporate sourced NPE problem	\$3.29	\$10.96	\$12.06
Inputs recap	Your company's name	StorageCo	SocialCo
Corporate revenue per year (\$M)	\$200	\$500	\$5,000
Assertions per year	1	20	20
NPE assertions per year (corporate sourced)	1	10	12
Patent litigations per year	1	3	4
NPE litigations per year (corporate sourced)	1	1	1
Number of sales per year	0.25	0.0	0.0
Number of sales to corporations per year by company	0.3	0.0	0.0
Number of sales to NPEs per year by company	0	0.0	0.0

- Take action against PAEs – aligns with the corporate culture of using patents for defensive purposes only.
- Integrate with other PAE solutions – the LOT Network is a component of a comprehensive defensive aggregator strategy to reduce PAE risk.
- Simplify patent sales – members reported feeling like they could sell to anyone, including PAEs.

When we spoke with non-member companies, many expressed interest in the ROI model, but some expressed concerns. The following were reasons companies gave for not joining the LOT Network:

- The company is actively selling or planning to sell patents to PAEs on a regular basis.
- The company lacks sufficient US revenue exposure and PAEs are most active in the United States (however, US-based PAEs are moving to Europe, while China continues to see increased PAE activity).
- Internal cost allocation structures prevent the company from paying the LOT Network membership fee.
- The executive team feels as though it has spent enough time on defensive aggregator models and does not have the bandwidth to look at another model.

- There is concern that the LOT Network encumbrance may affect a potential future sale of the patent portfolio.
- The company's existing licensing programme or licences are seen to make the LOT Network less attractive (eg, if your company has already heavily cross-licensed or has bilateral LOT arrangements with much of your ecosystem, the LOT Network will be of lower value).
- Small and medium-sized companies may be unable to fully model the impact of joining the LOT Network. Although the ROI from the model may appear positive, strategic shifts in corporate direction may make the model invalid for these small companies. For example, if a start-up joins the LOT Network with no intention of asserting or selling its patents and then finds itself unsuccessful in its main business, what options are available? If the start-up sues its competitors and accepts a cash settlement, how little cash would be required before the LOT licence were triggered? (Potentially very little, it turns out.) Ultimately, the small company joins because it believes that it will succeed in its main business and the cost of PAE suits from corporate-sourced patents will be

greater than the current expected value of asserting patents for cash.

- The LOT Network may not work where the norm in the industry is to license patents for revenue. For example, medical device, biotech and pharma may not benefit from the LOT Network because their usual revenue streams might trigger the LOT licence. The LOT Network may not work in industries that neither use high technology nor rely on high degrees of convergence. The LOT Network might not attract companies in chemicals, textiles and other industries which are less affected by PAEs and rely on far fewer patents to produce their products. High-tech companies (eg, computers, smartphones) and companies in the Internet of Things and self-driving vehicle industries, by contrast, integrate thousands of technologies to produce a single product and therefore may benefit more from the potential breadth of LOT Network coverage.

One additional concern, common to all defensive aggregators, is the free-rider problem. Some companies might not join the LOT Network simply so that they can keep all their options open, including privateering and sales to PAEs. These free-riders would reap some of the benefits of overall reduced sales of corporate patents to PAEs without having to pay the membership fees or offering licences to LOT Network members and they keep the full option value of potential patent sales. In short, if your company can last long enough outside of the LOT Network to be one of a few companies left, the free-rider option is attractive.

Two challenges exist for free-riding the LOT Network. First, for a long time before the free-rider benefit is fully realised, there is a viable market for other corporations to sell to PAEs and your company will be one of the prime targets. Second, current members will likely pressure non-members to join, so staying out of the LOT Network could become difficult. For example, it is reasonable to expect current members to begin requiring suppliers and partners to become members simply to reduce the overall risk. Additionally, LOT Network members may be emboldened to sell to PAEs because they know that LOT Network membership could have been an option for any company.

Determining ROI is key

We set out to determine whether an ROI could be modelled for a company joining a defensive aggregator. Our clients often ask us whether they should join any defensive aggregator. Although we represent defensive aggregators, we obtain waivers to allow us to objectively advise our other clients on whether membership makes strategic sense. To that end, we developed an ROI model for the LOT Network as an example of how one can model the ROI of a defensive aggregator.

The non-partisan financial model is a tool which should allow companies to answer an early question: “Do I think the LOT Network will have positive ROI?” When considering membership in any defensive aggregator, determining your ROI helps you to frame the membership discussion with other members of your corporate team. We have put forward a model that estimates the cost of PAE risk from corporate-sourced patents, estimates how membership in the LOT Network might reduce that risk and then estimates

Action plan



Successful defensive aggregator ROI modelling depends on following this step-by-step approach:

- Identify and model patent assertion entity risks:
 - What categories of PAE risk do you face?
 - How sophisticated are the asserters?
 - What are the sources of their patents?
 - Which technology areas are most dangerous?
- Model PAE costs:
 - How many PAE assertions or litigations are there now? In three years? In five?
 - What are the typical costs of an assertion or litigation?
- Model risk reduction – define how the defensive aggregator reduces your risk (eg, the LOT Network reduces corporate-sourced PAE patent risk for members’ patents) and the model’s expected impact of PAE risk reduction (eg, model changing patent availability to PAEs based on LOT Network growth). Articulate key assumptions and consider alternatives (eg, LOT Network growth directly relates to corporate sourced PAE patent availability). Alternatively, model patents in your company’s technology fields and LOT Network membership growth from your company’s peer group.
- Model costs – membership fees and other costs (eg, reduced or forgone sales to PAEs and other corporations).
- Calculate ROI:
 - return = risk reduction modelled over time;
 - investment = costs modelled over time; and
 - ROI calculated on the time value of money.
- ROI is not the end of the story – include non-financial considerations for the defensive aggregator solution and consider the interplay of multiple defensive aggregator solutions.

the potential lost value from membership. This ROI modelling approach can also be expanded for other defensive aggregators.

For most companies, defensive aggregator membership is more than merely a financial decision. For some, it is a statement about where they stand on PAEs. For others, in the case of the LOT Network, no financial model will help them to size the apparent incalculable loss of potential patent value – although we believe that we have shown that it can be calculated and usually it is not that high. From whichever perspective, a financial model can help to structure the discussions about the pros and cons of joining a defensive aggregator.

We are releasing the model under the Creative Commons licence so that others can modify and improve it. You can download the model and the instructions from www.richardsonoliver.com. We welcome feedback on the model. **iam**

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Note: The authors and their firm, Richardson Oliver Law Group LLP, are counsel for both members and non-members of the LOT Network, and represent defensive aggregators and advise companies on the pros and cons of joining various defensive aggregators. However, the views expressed are our own. We present this model to show that ROIs can be calculated for defensive aggregator membership, and not whether a specific defensive aggregator is worth joining

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