Who’s in the Driver’s Seat?

What the Connected Car Shows Us About the Legal and Regulatory Issues of the Internet of Things

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Imagine a vehicle whose firmware can be updated wirelessly and automatically. One that can alert the driver of a sharp curve three miles ahead. A car with the ability to stream live entertainment content to the children in the backseat while letting the driver know there’s an ambulance coming down the street. Connected cars and the Internet of Things can make all these possibilities reality. But first, the communications industry, the auto industry and federal and state governments must establish guidelines for use of the spectrum, explore issues of liability and collaboration, and prepare for new frontiers for patents and copyrights.

These topics and more were discussed at a recent seminar in BakerHostetler’s Washington, D.C., office arranged by the firm’s Communications Industry team. Titled “Who’s in the Driver’s Seat? What the Connected Car Shows Us about the Legal and Regulatory Issues of the Internet of Things,” the seminar featured several of the nation’s most respected authorities, including Federal Communications Commissioner Michael O’Rielly.

Overview of business issues surrounding IoT tech

**BakerHostetler Partner Chad Rutkowski**, who co-leads the Copyright, Content and Platforms team, opened the event with a brief presentation regarding the business issues involved in connected and autonomous vehicles. He noted that by 2018, it is estimated that one in five cars will be “self-aware” to some extent, with the potential for vehicle-to-vehicle, vehicle-to-infrastructure, vehicle-to-cloud, and vehicle-to-everything communication and information.

The data generated by these options ranges from 130 terabytes to 100 petabytes of data per car per year. Thus, controlling the data can mean controlling the development of the connected car. Some of the data sent and received by connected cars includes:

- Vehicle maintenance
- Safety (road hazards, driver behavior, insurance data)
- Infotainment (content, targeted and geo advertising)

Stakeholders in this environment include the consumer, original equipment and component manufacturers, network service providers, data storage/cloud service providers, data aggregation providers and brokers, data formatting service providers and data analytics companies. Intellectual property law issues range from copyrights for formatted databases and data reporting to trade secrets governing raw data analytics techniques.

Rutkowski drew the analogy that the Internet of Things is a river of data. Regulators, developers, providers and other interested parties are standing on the shore holding rocks. “If you throw a rock in the stream, you can change the course of the river of data,” he said. “If everyone has a rock and works collaboratively, you can build banks and tributaries and direct the flow. If you just throw rocks randomly, they can choke off the river.”

Panel One: The Business of Adapting IoT Technology

- Mike Burgiss, Vice President, Strategy, Cox Automotive
- Howard Gribbott, Special Counsel, FCC Office of Engineering and Technology, Spectrum Policy Branch
- Jack Zinman, Vice President and Associate General Counsel, AT&T
- Hussein Akhavannik, Partner, BakerHostetler
- Moderator: Chad Rutkowski, Partner, BakerHostetler
He added that cybersecurity is built into AT&T contracts with developers and vendors, specifying who is responsible for the security of the network or device.

Mike Burgiss, Vice President, Strategy, Cox Automotive, listed several services that either are already being used by connected cars or soon will be, including usage-based insurance and taxes, service reminders and vehicle diagnostics, teen trackers, infotainment, Wi-Fi, roadside assistance, and emergency alerts. He further categorized these as:

- Apps used while driving but not about driving: infotainment
- Apps about driving but not used while driving: usage, insurance, etc.
- Apps used while driving and about driving: This category is “not there yet,” he noted.

“The first panel tackled the topic of implementing IoT, including business models, IP strategies, licensing frameworks, technical and security standards, and spectrum sharing.

Jack Zinman, Vice President and Associate General Counsel, AT&T, began by explaining that AT&T has a "unique perch" because it encompasses retail sales, connectivity and platforms. Of AT&T's 30 million connected devices, 11 million are cars. To illustrate the IoT cycle, he held up a circuit board, "the brains of connectivity"; an antenna, the signal; and a SIM card, which connects the vehicle to the network. He explained that today's vehicles have hundreds of sensors in them. Historically, that data stayed with the car but now that data is able to be extracted and used for a multitude of purposes. Zinman also noted that in the future, vehicle firmware updates may be sent wirelessly directly to the car – eliminating the need to visit a dealership for these updates. Vehicles also can become mobile Wi-Fi hotspots, with an access plan that can be added to a family's larger data plan, thus converging various products like mobile phones and televisions.

“It’s a scale game,” Zinman said. “Build it once, sell it everywhere. But you need a network, so collaboration is necessary.” He cited a need for industries to strike alliances regarding roaming agreements, manufacturing and other issues. In addition, Zinman cited a “huge array of regulatory authorities” that will be involved at the state, national and international levels. Regarding the issue of international cooperation, Zinman related the recent experience of negotiating greater wireless access in Europe, where previously each country had required a unique SIM card.

Asked what the greatest pitfall of connectively is, Zinman did not hesitate: “Cybersecurity, cybersecurity, cybersecurity,” he said, adding that for the connected car the single most alarming consequence would be to have cars and vehicle systems hacked. Finally, he emphasized that the best way to get corporations thinking about connectivity's rewards and risks is to involve the CEO and other top executives.

Later, Zinman, in response to a question from the audience, explained AT&T’s approach to cybersecurity issues. “We have an interest in seeing IoT succeed, so we work proactively with developers and we work closely on the architecture of communications so they are inherently more secure. So cars only receive incoming information from a dedication server, for example.”
DSRC consists of two-way wireless communications that permit very high data transmission between vehicles (vehicle to vehicle or V2V) and between vehicles and roadside units (vehicle to infrastructure, or V2I). These safety applications could potentially include intersection collision avoidance, emergency vehicle signal priority, rollover warnings, and travel and travel condition data. Wi-Fi applications, as noted above, include a huge array of communications, infotainment and data transfer possibilities.

The FCC is currently nearing the end of Phase I testing of spectrum sharing between these two systems, focusing on if and how the spectrum can be shared without significant interference. There are two competing approaches, one from Cisco and another from Qualcomm.

The Cisco approach, known as “detect and vacate,” calls for unlicensed devices to monitor the entire band and vacate the band if a licensed DSRC or “safety” signal is detected. The Qualcomm option calls for the band to be “rechannelized,” or divided so that the licensed safety channels are at the top of the band and the lower channels are widened to 20 MHz and set aside for the use of unlicensed devices.

Griboff noted that interested parties include the automotive industry, the communications industry, equipment manufacturers, state and local transportation departments, and the public and consumers’ rights organizations. “Spectrum is a finite resource, so the FCC is focused on making the most of it,” Griboff said.

The FCC has designed a three-phase test plan that will see Phase I, lab testing, followed by Phase II, basic field tests, and finally Phase III, real-world testing. Griboff added that equipment still is being collected for lab testing and there is no current timeline for when Phase I will conclude or the other phases will begin.

Hussein Akhavannik, a Partner in BakerHostetler’s Intellectual Property Group, addressed the patent challenges of drafting IoT applications and devices that involve multiple parties. He explained that it is vital to protect the flow of data among the players, saying, “You don’t want cross-pollination that would destroy the patentability.” He recommended that patent attorneys focus on specifics, saying, “Capture patents that are directed toward your client, the single-provider perspective.” In addition, he suggested that attorneys familiarize themselves with which parts of a device can be patented, such as chips, sensors, software that processes collection of data and software that analyzes data.

“IoT is new, sensors are new, collections systems are new, analytics are new,” Akhavannik said. “It’s a whole new world that will provide benefits. Get into the details of what you are doing, how you are doing it and what are the practical benefits. In the IoT world, this means patents are less of a challenge than in the financial services world because it’s all new.”

Standards in this area have not yet been set, he emphasized, meaning that if a client can develop a standard-essential patent (SEP), it can be monetized “in a vast way.” He suggested that developers consider joining IoT patent pools, but license those patents separately. He also noted that IoT security patents are largely being driven by private companies, not universities.

Akhavannik added that companies will need to make decisions regarding what they protect as a trade secret vs. what they seek copyright protection for. “Copyright is in the source code and extends to literal elements of the code,” he said, “but nonliteral elements such as screen display and information flow may not be subject to copyright protection. Sometimes elements such as the schema of the data base bleed into functionality. It’s a gray area that’s getting grayer.” He also noted that the “multiplicity of forms approach” for copyright protection in software can be very valuable and that source code should be kept “under lock and key.”

Panel Two: Overview of the Regulatory Issues Surrounding IoT Technology

- Hon. Michael O’Rielly, Commission, Federal Communications Commission
- Katie McInnis, Policy Counsel, Consumers Union
- Danielle Piñeres, General Counsel, NCTA, the Internet & Television Association
- Ari Fitzgerald, Partner, Hogan Lovells
- Scott Patrick, Of Counsel, BakerHostetler
- Moderator: Gary Lutzker, Partner, BakerHostetler
The second panel took a deeper look at how government regulations and policies are shaping the IoT environment and the development of the connected car.

**Hon. Michael O’Rielly, Commission, Federal Communications Commission** began by emphasizing that based on the assumption that the technology tests that the agencies is conducting are successful, some form of sharing of the 5.9 GHz band is essential. “If we can’t do any sharing, all bets are off,” he said. “Safety of life is our focus. The commission has to lock that down – it’s very critical. Do we choose one of the two proposals put before us or nothing?”

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– FCC Commissioner Michael O’Rielly

Commissioner O’Rielly explained that he believes that while some safety standards may be hard to define, he is confident that a few uses framed as safety of life issues do not really meet those criteria. Citing the example of using the spectrum to direct connected cars to open parking spots in a crowded garage, he said the argument has been made that if cars don’t sit idle, releasing carbon dioxide while they wait for a parking space to open, that will ultimately improve air quality. “I’m sorry,” he said, “but that is not a safety of life issue.”

He also addressed calls for collaboration between the FCC and the National Highway Traffic Safety Administration (NHTSA). Commissioner O’Rielly emphasized that while the FCC is willing to work with NHTSA, the FCC is an independent agency with its own mission. “I’m not sure there is a great interaction between the FCC and other agencies,” he said. “We’ll certainly be cognizant of and mindful of the work that they’re doing as it relates to the [automotive] side of the equation, but ours is to make sure this spectrum is used efficiently and in a timely manner.”

**Ari Fitzgerald, Partner, Hogan Lovells**, who counsels the automotive industry on communications-related products and spectrum policy issues, explained the industry’s support for Cisco’s “detect and vacate” spectrum option. Automakers are looking to use licensed DSRC within the spectrum for a wide range of vehicle-to-vehicle technology that include safety issues as well as other applications.

“Changing the environment for DSRC would delay these important services and upset investment backer expectations of local and state governments and the auto companies.”

– Ari Fitzgerald, Hogan Lovells

“The auto ecosystem prefers Cisco because it is based on dynamic frequency selection that has proved effective,” he said, adding the Cisco option also does not “squeeze” the legacy services into the top of the band, or change the channelization from 10 MHz to 20 MHz. He noted that the auto industry recognizes and supports the sharing of the spectrum with unlicensed Wi-Fi, but said $1 billion already has been invested on the assumption that the “detect and vacate” approach will prevail. The debate has gone on “far too long,” he added.

“Going back at this point and changing the environment for DSRC would delay these important services and upset investment backer expectations of local and state governments and the auto companies,” Fitzgerald said.

**Danielle Piñeres, General Counsel, NCTA, the Internet & Television Association**, took a contrasting approach, arguing that the Wi-Fi alliance needs more unlicensed spectrum for its use, and Qualcomm’s rechannelization plan allows that. “We think the best way to protect safety of life is to give it an exclusive spectrum at the upper 30 MHz,” she said. “Rechannelization wouldn’t squeeze it but would actually allow for growth in [the] upper part of the spectrum.”

Piñeres said there is a critical need for wide-band unlicensed channels to support the latest Wi-Fi standards. She also argued that the “detect and avoid” approach is unworkable, saying it would require that unlicensed Wi-Fi applications would need to vacate the band for up to 10 seconds if a single DSRC communication is heard, “which would mean no airtime for Wi-Fi.”

Fitzgerald countered that a complicated prioritization scheme already has been developed for the sharing of the spectrum and is being used for some safety applications, and that rechannelization will make those systems obsolete, requiring expensive and time-consuming testing.

Piñeres, however, said there are not a large number of such devices already in use, and said, “This is the time for the FCC to make this call – as innovation develops.”

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**Katie McInnis, Policy Counsel, Consumers Union**, said that the Consumers Union, a consumer interest nonprofit, believes that privacy and security are the most pressing issues in the spectrum debate. “Safety of life is paramount,” she said. “Consumers should be put first. We also want to ensure that consumers aren’t giving up any data ownership rights they have.” To that end, Consumers Union supports the Qualcomm rechannelization plan, which would allow all parties to take advantage of the IoT technology without sacrificing safety and security.

“This is the time for the FCC to make this call – as innovation develops.”

– Danielle Piñeres, NCTA
Scott Patrick, Of Counsel, BakerHostetler, said, “I’m going to defend the bureaucratic pace here,” noting it’s important to study the issue before locking into a system. “Here we have a connected car with a lot of exciting possibilities,” he said. “What an incredible diversity of interests – auto, wireless, Silicon Valley, consumers, content, privacy, security and safety.”

Trying to build flexibility into the system requires a deliberate pace, Patrick said. “Maybe that won’t get us there. Maybe 5G (wireless) is the answer. Keep your options open.” He added that the NHTSA is attempting to set standards regarding how vehicle-to-vehicle, vehicle-to-infrastructure and vehicle-to-network messages are authenticated, and when and how warnings are triggered.

He explained that in order for vehicle-to-vehicle communication to truly provide benefits, it needs to become much more widespread. However, today’s vehicles have long life spans, meaning the rollout of V2V capability will take time, even if it is mandated for new cars. Fitzgerald said that it is expected that there will be an aftermarket to add DSRC options to existing cars and that one option is to develop wireless applications that send vehicle and driving information to handheld devices such as mobile phones. But, he added, it is important to move forward on the 5.9 GHz spectrum for automated car development.

Fitzgerald said the most popular connected car services currently in operation include navigation, crash notification, remote door unlocking and infotainment. Most of these run over mobile services and are largely unregulated by the FCC. He said that once the 5G mobile network is deployed, “We expect more data-rich offerings to be made available,” and these will not need dedicated DSRC. However, V2V applications will need dedicated spectrum.
Hussein Akhavannik focuses his practice on patent prosecution and portfolio management. He prosecutes patent applications in technologies related to the electrical, computer, medical, and mechanical arts. Hussein spent almost four years at the U.S. Patent and Trademark Office (USPTO), as a Patent Examiner and as a legal intern in the Patent Trial and Appeal Board and the Office of the Solicitor. He leverages his understanding of the inner-workings of the USPTO, his technical background in electrical and biomedical engineering, and his clients’ objectives to develop creative solutions for clients in a cost-effective manner.

Christopher M. Arena has nearly 25 years of experience in intellectual property law, with his focus including both the business aspects of intellectual property and the acquisition of intellectual property rights through the preparation and prosecution of patent and trademark applications worldwide. Having previously served as the Chief Intellectual Property Counsel for Cingular Wireless and earlier as Chief Patent Counsel for BellSouth Corporation, Chris has a strong command over all areas of IP practice. In addition to IP strategy development and his patent practice, he has particular skill in transactional matters, especially asset acquisition and management, licensing, indemnification enforcement and litigation management. At BakerHostetler, Chris applies these skills to help clients achieve greater value for their businesses through strategic use of intellectual property.

Gary Lutzker focuses his practice in communications and cable television (broadband) law, regulation, transactions, and policy. He counsels major communications and media clients, and represents them before the Federal Communications Commission, U.S. Copyright Office, Federal Trade Commission, Department of Justice, and state and local regulatory agencies, on matters including cross-ownership, broadcast carriage, program exclusivity, leased commercial access, program access, program carriage, franchising and franchise fees, rights-of-way use and access, rate regulation, effective competition, pole attachments, copyright licensing, closed captioning, navigation devices, and regulatory enforcement, among others. In the policy arena, Gary prepares comments in administrative rulemaking proceedings and advises clients on the operational impact of federal, state, and local communications and cable television statutes and regulations.

Scott Patrick represents media, telecommunications and technology clients, primarily before the Federal Communications Commission (FCC) on regulatory, transactional and policy matters. He has counseled cable, wireless, broadcast, and broadband companies on a wide range of day-to-day and complex regulatory issues. Drawing on a breadth of experience, Scott understands the media and telecommunications industries and is particularly attentive to client needs.

Chad Rutkowski focuses his practice on intellectual property litigation and litigation counseling. With an extensive background in general commercial litigation, Chad’s practice involves both contractual disputes involving intellectual property and the protection of intellectual property itself. Chad has handled litigation involving all aspects of intellectual property law as well as the enforcement of IP licensing rights. Chad has appeared before federal and state trial courts, private domestic and international arbitration panels, and has argued before the New Jersey Supreme Court and lower appellate courts. His experience in handling litigation has led him to develop a particular skill in enforcing the indemnification rights of clients, and he has helped create a unique program for coordinating those enforcement rights across multiple cases and multiple technology fields.