The Open Internet Advisory Committee (OIAC or Committee) for the FCC was convened for its second meeting at 10:00 A.M. on October 9th, 2012 in the Milstein West A room at Harvard Law School. A full video transcript of the meeting is available at the FCC website at http://www.fcc.gov/encyclopedia/open-internet-advisory-committee together with a copy of all materials presented at this meeting.

In accordance with Public Law 92-463, the entire meeting was open to the public.

**Council present:**

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<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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<tr>
<td>Brad Burnham, Founding Partner, Union Square Ventures</td>
<td>Kevin McElearney, Senior Vice President for Network Engineering, Comcast</td>
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<td>David Clark, Senior Research Scientist, Massachusetts Institute of Technology Computer Science and Artificial Intelligence Laboratory</td>
<td>Jennifer Rexford, Professor of Computer Science, Princeton University</td>
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<td>Alissa Cooper, Chief Computer Scientist, Center for Democracy &amp; Technology</td>
<td>Dennis Roberson, Vice Provost &amp; Research Professor, Illinois Institute of Technology (representing TMobile)</td>
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<td>Leslie Daigle, Chief Internet Technology Officer, Internet Society</td>
<td>Charles Slocum, Assistant Executive Director, Writers Guild of America, West</td>
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<td>Shane Greenstein, Professor and Kellogg Chair of Information Technology, Kellogg School of Management, Northwestern University</td>
<td>Marcus Weldon, Chief Technology Officer, Alcatel-Lucent</td>
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<td>Neil Hunt, Chief Product Officer, Netflix</td>
<td>Michelle Zatlyn, Co-Founder &amp; Head of User Experience, CloudFlare</td>
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<td>Charles Kalmanek, Vice President of Research, AT&amp;T</td>
<td>Jonathan Zittrain, Professor of Law and Computer Science and Co-Founder of the Berkman Center for Internet and Society, Harvard University</td>
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<td>Jessica Gonzalez, Executive Board, Media and Democracy Coalition; Vice President for Policy &amp; Legal Affairs, National Hispanic Media Coalition (representing NHMC)</td>
<td>joining via conference call</td>
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**FCC staff in attendance included:**

Daniel Kirschner
OIAC Chairman Jonathan Zittrain opened this second meeting of the OIAC by providing a brief overview of how the OIAC functions via four working groups: Mobile Broadband, Specialized Services, Economic Impacts, and Transparency, with Committee members assigned to one or more groups. Chair Zittrain then turned the floor over to committee members for a brief round of reintroductions, followed by an in-depth discussion of the working groups.

**Mobile Broadband**

Jennifer Rexford offered a brief overview of work by the Mobile Broadband working group since the July 20, 2012 meeting. Rexford summarized a series of discussions on ways in which mobile broadband represents an increasingly crucial part of Internet access, yet is still at an early stage of development, a dynamic that is both exciting and challenging.

Next, Professor Rexford shared the group’s approach, which has focused on several concrete, real-world case scenarios in order to capture relevant facts, issues, and viewpoints. She described how three specific case studies investigated within the working group thus far -- FaceTime, App Signaling, and Google Wallet-- represent opportunities from which to discern general lessons and best practices. She then sketched out the group’s discussions regarding FaceTime, which centered on determining whether the behavior in the FaceTime case represents normal management practices or something about which to be concerned, stressing that the group’s members are not of one mind on this issue.

Ms. Rexford then sketched out the group’s work on application signaling. She stressed the challenges in this arena, which include the need to address apps with high signaling traffic and to determine the best ways to manage signaling load. These issues, as Ms. Rexford conveyed, are all the more challenging given the short lifetime of the average application and the dynamic nature of this sector, and optimizations across applications and across devices are quite complex.

Ms. Rexford shared that going forward, the working group plans to focus on the meaning of ‘reasonable managing practices’, especially in terms of mobile, as well as to devote attention to how to understand technical details, which matter tremendously in this space. She proposed that other advisory groups within the FCC might be asked to do technical deep dives on important issues, with an eye to developing a set of best common practices for network management.

**Group Discussion**

Chair Zittrain then signaled that other members of the Committee were free to ask questions regarding this presentation. Charles Slocum posed the first question, asking about examples of signaling issues involving applications that are particularly chatty. This question prompted a brief discussion among Committee members about different ways to handle application development, and the sorts of information that application developers may need to take into account. Several committee members then suggested that it may be important to consider the presence or absence of incentives for application developers and users alike to learn about and modify practices in response to the underlying signaling behaviors. A critical challenge in this space, as articulated during this discussion, is the difficulty of aligning incentives of a number of
actors with cross-cutting objectives, particularly when the appropriate standard and/or behavior may vary across applications, over time, and in different physical locations.

The conversation among Committee members then transitioned to a consideration of ways in which mobile technologies generally and recent advances in particular have affected the Internet and its development. OIAC Vice Chair David Clark commented that initially, it was difficult to know how to approach the mobile space other than by telling application designers to be infinitely adaptable to circumstances. In particular, Vice Chair Clark emphasized that the mobility that contemporary technology affords, paired with a lack of feedback as an application runs across dynamic contexts, may pose particular challenges for the battery life of a device. Other members of the Committee added to Vice Chair Clark’s remarks, suggesting that the ability of users to run applications on mobile devices could also change the amount of bandwidth available at different times in ways that might affect not only the user experience, but also might make sense from a network management perspective.

Following this discussion of key issues, Transparency Working Group member Michelle Zatlyn as well as Professor Rexford suggested that there may exist opportunities for the two working groups to collaborate on the collection of information on reasonable network management practices and signaling management practices across broadband and mobile providers. Chair Zittrain stated that such a collaboration might be particularly valuable in regard to this issue, since it is important to contextualize such research against the backdrop of the Open Internet rule, which specifies that certain issues in the wireline space do not carry over to wireless.

Professor Rexford concluded this portion of the meeting with an overview of next steps for the Mobile Broadband working group, which will include writing up the two examples she presented, FaceTime and App Signaling, alongside a third case, Google Wallet.

**Specialized Services**

Vice Chair David Clark presented on behalf on the Specialized Services Working Group, giving background on specialized services as addressed in the FCC’s original Open Internet Report and Order (R&O) and as reflected in a great deal of commentary to the FCC both before and after this R&O. Next, Vice Chair Clark suggested that one productive avenue for the working group might be case studies, yet cautioned that this strategy can be challenging, given the difficulty of providing the FCC with useful advice in a situation in which authority is uncertain.

In discussion, Neil Hunt asked what sorts of competitive market forces, or lack thereof, shape what constitutes adequate and effective delivery of open Internet in today’s market environment, suggesting that the power of a select number of resource providers constrains content delivery. Alissa Cooper suggested that there is an opportunity to employ a case study methodology to discern what members of the Committee consider to be Internet service versus other services that are not. Leslie Daigle also emphasized that the Committee should consider how merging or separating different services could affect the future. The next portion of the discussion shifted to the relationship between Internet services, specialized services, and the broader technological regulatory environment in the U.S., including a consideration of potential security concerns for this space.

Vice Chair Clark concluded by stating the working group would continue to engage in a series of phone conversations and seek to clearly identify core questions on which to make progress. In
particular, he indicated that the question of what services the working group is and is not monitoring is a pertinent one that becomes even more important in light of fairly uncertain terrain in this field.

**Economic Impacts**

Shane Greenstein presented on work conducted to date within the Economic Impacts Working Group. Mr. Greenstein highlighted several questions to potentially consider, including whether there is any evidence regarding the impact of the Open Internet Order on investment in infrastructure; whether there is any evidence regarding the economic impact of data caps on broadband; and whether there are different approaches to Open Internet regulations across countries that prove better or worse from an economic perspective.

In discussion, Brad Burnham suggested that it will be essential to look at economic impacts from not only a network and capacity point of view, but also from the vantage point of the applications that drive usage. Other members picked up on international analysis as an especially fruitful area of inquiry, pointing to the potential utility of comparing wireless usage, consumer spending, and quality of service in the U.S. as compared to many European nations. This portion of the conversation concluded with a general consensus that looking at empirical data will be productive.

**Transparency**

Michelle Zatlyn presented on behalf of Russ Housley, the Transparency Working Group Chair, providing an overview of the group’s efforts. According to Ms. Zatlyn, the group had determined that the phrase ‘reasonable network management’ represents a particularly important part of the Open Internet rules, and that an investigation of what Internet Service Providers (ISPs) currently disclose regarding network management practices would allow the group to assess next steps.

In discussion, Chair Zittrain stated that there is always a key question regarding the appropriate level of granularity for disclosures, after which Ms. Rexford suggested that it might be productive to consider whether a given management practice is possible to implement. Multiple members of the group indicated that in evaluating this information, it will be important to consider the right amount of disclosure that provides helpful information, yet neither places private information at risk nor burdens network managers.

Next, Committee members offered potential research recommendations that might inform the efforts of the working group. Jessica Gonzalez suggested that the working group might consider the languages in which network management practices are disclosed, and offered to assist in this effort. Ms. Cooper then recommended that the group consider not only static disclosures, but also materials such as just-in-time notices that companies serve to users and other more targeted tools for specific services. She also suggested that an assessment of existing work in Europe on standardized disclosure, such as comparison websites in the U.K., might provide helpful information.

**11:15am - Discussion of Additional Groups, Outputs**

In the next portion of the meeting, Chair Zittrain asked whether the Committee needed additional working groups. Mr. Hunt proposed two additional potential working groups:
interconnection best practices; and data caps. The group agreed that the best approach is to integrate these new questions into existing working groups. In particular, Chair Zittrain suggested that the Economic Impacts Working Group might address some of the proposed work regarding data caps, and the Specialized Services Working Group might potentially investigate the issue of differential caps for different services for different reasons, a conclusion that members of the Committee supported. Professor Rexford also proposed that some of the topics might fit into the work of the Mobile Broadband Working Group.

Chair Zittrain recommended that each working group could consider which elements of these additional topics they might be best equipped to address. Mr. Hunt supported this conclusion, stating both that many of the points could be reduced to economic arguments and that assessing the technical sides of these issues would also be essential, with an eye to how to maintain innovation at the edge of the network. Chair Zittrain concluded this portion of the discussion with a proposal that the Committee consult with Daniel Kirschner regarding the FCC’s existing efforts in this space so as to build upon rather than duplicate existing work. He then opened the floor for public comments. The meeting concluded at 11:55.