A) Title of the Technical Issue:
Differentiated Treatment of Internet Traffic

B) Detailed description of the Technical Issue:

Differentiation of residential internet network traffic on both wireline and wireless networks is a topic of continued interest. Significantly, there is a lack of understanding among policymakers and the public as to how traffic differentiation can be accomplished from a technical perspective. In order to inform the policy debate around the technical aspects of differentiation, we submit to the TWG a request for a technical review and resulting report that describes the various technical methods and techniques used to differentiate Internet data traffic — as well as the impact these methods may have on different types of applications. Additionally, the report should describe appropriate best practices as identified by the group.

The TWG could consider the following questions:

- What would a "paid prioritization" service prioritize?
- What are the technologies applied to traffic differentiation? How do these technologies operate? When and why are they used?
- What is the difference between differential versus prioritized?   Differential versus preferential?
- Are there forms of differentiation/prioritization that do not negatively impact other (non-prioritized) traffic?
- Are there best practices that ISP and application providers should apply?
- Is end-to-end prioritization necessary for end users to realize noticeable or significant benefits?
- Can prioritization be provided to any number of users or only a subset?
- Can users determine priority? If yes, is it feasible to apply broadly? What might be done to maximize end-user control?
- What constitutes useful transparency when it comes to differential treatment of Internet traffic?
- What are the methods that assure application-agnostic discrimination?
- How do specialized services fit within the concept of differentiated services?
- How are enterprise services afforded control over traffic?

Possibility of Related Regulations Announced During Review. Notably, there is also the possibility of regulators announcing regulation related to prioritization/differentiation during the 120-day "shot clock" during which this review will be accomplished. Any analysis and resulting report should take into account regulatory changes, if any (and to the extent necessary), prior to completion and publication.

C) Describe which BITAG Member Categories are affected by this issue (i.e., Applications Providers, Community Representatives, Content Producers, Equipment Manufacturers, Internet Connectivity Providers):

- Applications Providers
- Community Representatives
- Content Providers
- Equipment Manufacturers
- Internet Connectivity Providers

D) Describe why a BITAG Technical Working Group Review of this technical issue would inform policymakers and the public:

Discussions continue as to how packets may be differentially treated on the Internet and the consequence of such. However, these discussions fail to describe the how, why and when packets are differentially treated by an ISP.

The 2010 Open Internet Order included a section on anti-discrimination and a discussion on issues relating to differential treatment of services. While this part of the Order was ultimately struck down, this issue continues to be discussed by policymakers. In the 2014 NPRM, the FCC stated, "For example, a provider can use technical methods like packet classification, admission control and resource reservation, rate control and traffic shaping, as well as packet dropping and packet scheduling to identify and manage traffic on its network. Such techniques may provide additional ability to discriminate in a way that is largely opaque to edge providers and end users. We seek comment on the technical tools broadband providers can and do use to manage traffic on their networks." The FCC has also asked questions around disclosure (see bullet point list above).

BITAG could assist policymakers and the public in understanding the technical elements of any resulting debates, especially when it comes to differential treatment of Internet traffic, by providing an educational document on this topic and providing a set of best practices.

E) What relevant standards or standards bodies are directly implicated or related to this issue:

IETF

NANOG

F) Please Provide or attach additional diagrams or items that would be helpful to other Technical Working Group Representatives in evaluating the merits of taking up this technical issue for review:

TBD

G) Additional items that may be relevant: