**Background:**

As networks become increasingly dynamic, the need for timely and accurate routing decisions grows. Current traffic engineering and load balancing solutions are often reactive, with limited real-time visibility into network conditions. There is a growing need for fast, efficient notification mechanisms that can quickly propagate relevant network conditions, such as congestion, link quality, and SLA compliance, to enable proactive traffic management.

FANTEL (Fast Notification of Traffic Engineering and Load Balancing) BOF seeks to address this gap by exploring the standardization of notification procedures to enable real-time traffic information spread. This effort is crucial in improving the efficiency of routing decisions, optimizing resource usage, and ensuring reliable service delivery, especially in complex and evolving network environments. The BOF will focus on developing notification mechanisms that can support traffic engineering and load balancing, leveraging real-time data from network elements.

This BOF will explore the integration of real-time network condition informing, including parameters like link congestion, queue lengths, and SLA compliance, to enable more informed and dynamic routing decisions. This will ultimately lead to enhanced network performance, reducing delays and improving traffic distribution across the network.

**Scope:**

- Investigate use cases, requirement and gap analysis for fast notification, particularly for large-scale or complex networks, such as 5G, enterprise, and industrial control networks.

- Develop notification protocols that can transmit real-time network conditions, including link congestion, SLA compliance, queue length, and other relevant metrics.

- Specify mechanisms about how these notifications can be integrated into adaptive traffic engineering and load balancing systems for faster and more accurate routing decisions.

- Specify fast notification information models to support the collection and use of real-time data for network decision-making.

**Goals and Milestones:**

1. Defining Real-Time Traffic Reaction Challenges:

- Based on the use case and requirement, in DC and in WAN.

- Define key challenges in Real-Time Traffic Reaction, such as the need for fast, efficient notification of network status and the integration of these notifications into adaptive routing systems.

2. Standardization of Notification Procedures:

- Define and standardize fast notification mechanisms that enable routing nodes to quickly respond to network conditions such as link congestion, queue lengths, and SLA violations.

- Develop notification formats and protocols that ensure efficient communication between network elements.

3. Specification of Fast Notification Information Models:

- Further develop and specify the notification information models, focusing on the data needed for effective real-time decision-making in dynamic networks.

4. Proposing Fast Notification Solutions:

- Explore the design of how to use notification, which could enable timely and informed routing adjustments based on changing network conditions.