



W3C Web&Networks Interest Group

*Overview, key topics and intersection areas
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Web&Networks Interest Group

The mission of the [Web & Networks Interest Group](#) is to explore solutions for web applications to leverage network capabilities in order to achieve better performance and resources allocation, both on the device and network.

Key Topics in scope (from the charter):

- **Application hints to the network** (e.g. ways for applications to declare their operational wishes to the network). Specifically, the group will focus on hints and similar approaches that can simultaneously benefit web application and network performance (in general-purpose browsers, tablets, phones). For instance:
 - Multipath, multi-carrier, multi-connectivity handling;
 - Latency vs bandwidth trade-offs, for instance high bandwidth 4K video stream, or low latency video call, etc.
- **Network hints to device applications** to enable moving of compute functions across the network between client, edge or cloud depending on user-experience and compute requirements, and optimal resource utilization. This can complement other offload decision factors like contextual information, for e.g. cost, privacy, battery level, etc.
- **Exposure of specialized services** such as DiffServ, 5G Slices, WebTransport and Edge Computing, including load balancing computing between client devices, edge and cloud, particularly in latency-sensitive applications like Machine Learning inference and Cloud Gaming (used for rendering game on the cloud).
- **Evaluation of aggregated web metrics** for enhanced troubleshooting and network performance optimization to improve web application experience.



Focus areas

The group is currently focused on:

- **Network Quality Monitoring and Prediction** with the goal of improving how Web apps can monitor and prepare for changes in network conditions
- **Edge Computing** with the objective of understanding the impact of edge computing for Web applications and build a roadmap to enable its adoption
- The role of **peer-to-peer** network topologies in content distribution
- Network emulation tools, trace formats



Edge Computing for the Web

The following themes have been identified to guide our initial exploration:


- understanding in what context and for what use cases edge computing might be used in Web applications
- sketching what architecture approach is required to offload computing tasks from the browser to an edge node
- understanding if the "split-browser" model built for cloud-based rendering of Web pages needs more attention in an edge-enabled world

We had people present ideas on compute offload to the edge using:

- ServiceWorker
- WebAssembly
- WebWorker

Collecting use cases and requirements on the [wiki](#)





Network Quality Monitoring and Prediction

- The primary goal of the workstream is to study use-cases that can benefit by using network quality information, either instantaneous or predicted values, to adapt to varying network conditions.
- The secondary goal is to identify requirements, both from application or network perspective, such that the right network quality parameters are monitored and used to improve the quality of experience of the use-case.
- The workstream also discusses similar existing APIs introduced for this purpose in web browsers in the past and also in different layers of the software stack or operating systems in mobile and personal computer laptop devices.

Detailed findings are maintained on the [wiki](#) and the group keeps issues in [github](#)

Potential future collaboration with TAPS

