#### APN

Long name: Application-aware Networking

Abbreviation: apn

Description:

In many network infrastructures, more and more users are demanding better services from their network connectivity. These new service requirements introduce new challenges for the network operators especially with the emerging of new technologies. As 5G and industrial verticals evolve, network users express more diverse requirements such as ultra-low latency and high reliability for their application traffic, which imply a better differentiation in service treatment.

However, operators have no visibility of the applications that users are running over their networks. This means that only coarse-grained levels of service can be provided to users, with many services for different types of application being grouped together for identical treatment within the network. As a result, operators are evolving to deliver large but dumb pipes, without opportunities for revenue increases that might result from offering different grades of service. Furthermore, users are unable to get access to very high service qualities necessary for specific advanced applications.

As the network technologies evolve (including MPLS, IPv6, and Segment Routing), the traffic engineering, quality-aware routing, deterministic networking and network programmability can be leveraged and augmented by conveying application related information into the network. Adding knowledge of the application that generated traffic allows, at one end, the application’s requirements to be indicated at a finer granularity, which allows, at the other end, the network to act based on those requirements and bridges the gap between the network and the applications running through it.

The Application-aware IPv6 Networking (APN6) proposal was discussed in the APN6 side meeting at IETF-105, where there was some agreement of the value of the work. Minutes of this meeting and the related materials are available here:

[​](https://mailarchive.ietf.org/arch/browse/ggie/) <https://github.com/shupingpeng/IETF105-Side-Meeting-APN6>

Since then, it has become clear that the APN concept should apply more widely than just in IPv6 networking, in particular to fully embrace both IPv6 and SRv6, as well as to include MPLS.

This BoF seeks to further clarify the problems faced by network operations in providing high and diverse levels of service, and will look to see whether awareness of applications and their requirements could improve how networks are operated and how services are delivered. It will outline various use cases that could benefit from the APN, and try to gather wider consensus in the IETF community on the way forwards for APN, in particular whether protocol extensions are necessary or whether operational procedures should be changed.

Status: Non WG Forming

Responsible Area Director (AD): Martin Vigoureux

Possible suggested BoF chairs (ADs to assign actual chairs): James N Guichard <james.n.guichard@futurewei.com>, Zafar Ali <zali@cisco.com>

BoF Proponents: Zhenbin Li <lizhenbin@huawei.com>, Shuping PENG <pengshuping@huawei.com>, James N Guichard < jguichar@futurewei.com>, Zafar Ali <zali@cisco.com>, Daniel Voyer <daniel.voyer@bell.ca>, Chongfeng Xie <xiechf.bri@chinatelecom.cn>, Liang Geng < gengliang@chinamobile.com >, Chang Cao < caoc15@chinaunicom.cn>, Kentaro EBISAWA <ebisawa@toyota-tokyo.tech>, Stefano Previdi <stefano@previdi.net>

Number of people expected to attend: 100

Length of session (1, 1.5, 2, or 2.5 hours): 2 hours

Conflicts to avoid (whole Areas and/or WGs): 6man, v6ops, spring, opsawg, intarea, dmm, rtgwg, sfc, detnet, ippm, mpls, pce, teas

Tentative Draft Agenda

* Introduction & Agenda Bashing (10 mins)
* Problem statements – The motivations for APN – Why APN? (20 mins)
* APN Use cases – What are the pain points? What are the benefits of APN? (30 mins)
* Discussions & Clarifications – Collecting views from the IETF community. (45 mins)
  + What type of applications do we want to support?
  + What does the network need to do to support those applications?
  + What can we do with existing tools?
  + Why/how isn’t that enough?
  + What other things might we do?
* Conclusion – the way forward. (15 mins)

Links to the mailing list, draft charter if any, relevant Internet-Drafts, etc.

* Mailing List: - None assigned as yet
* Relevant drafts (currently these drafts focus on APN6, but there will be updates soon):
* Problem statement & Use cases:
  + ​<https://tools.ietf.org/html/draft-li-apn6-problem-statement-usecases-01>
* Framework
  + - <https://tools.ietf.org/html/draft-li-apn6-framework-00>