Application-aware Networking (APN) Scenarios of Edge Computing

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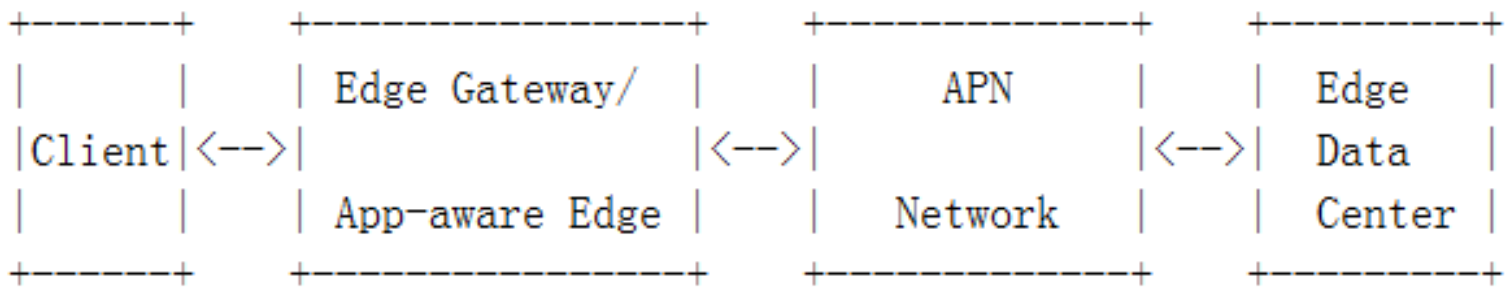
Converge of Edge Computing and APN

- In a whole edge computing network, there are user terminal, edge gateway and edge data center. The edge gateway can be the UPF In 5G network. The edge data center is uasually closed to the user, so it can provide the low latency service.

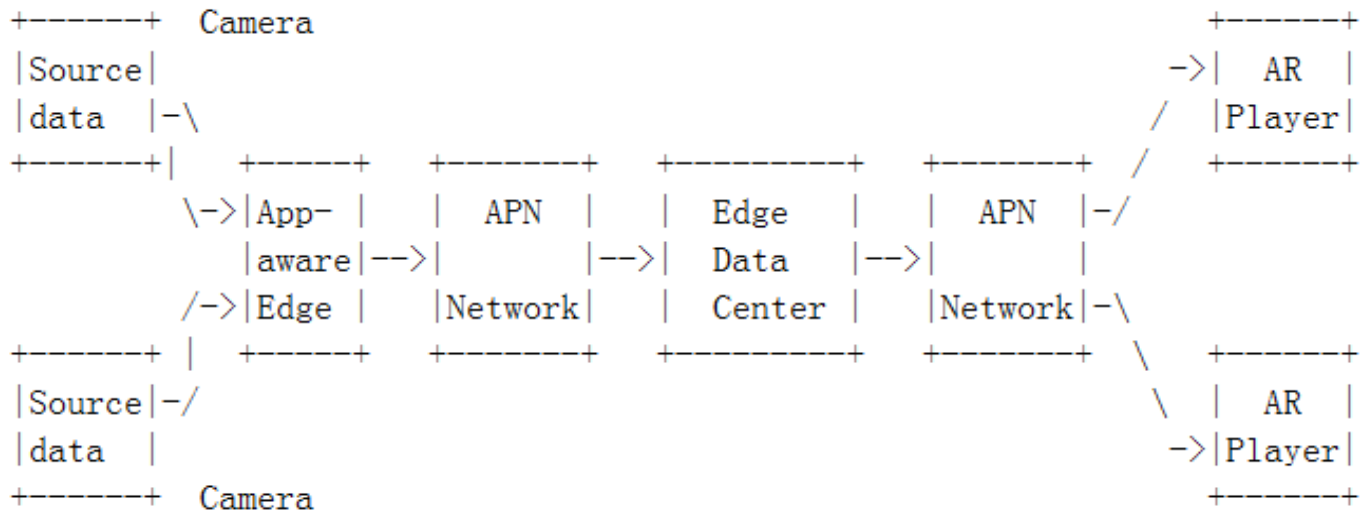
- The function of app-aware edge can be deployed in the edge gateway, so the request traffic of client can be distinguished by the edge gateway/app-aware edge and sent to the edge data center through the APN.



Augmented Reality (AR)

Requirements:

- •High bandwidth for the collected video source data
- •Low latency for the User experience



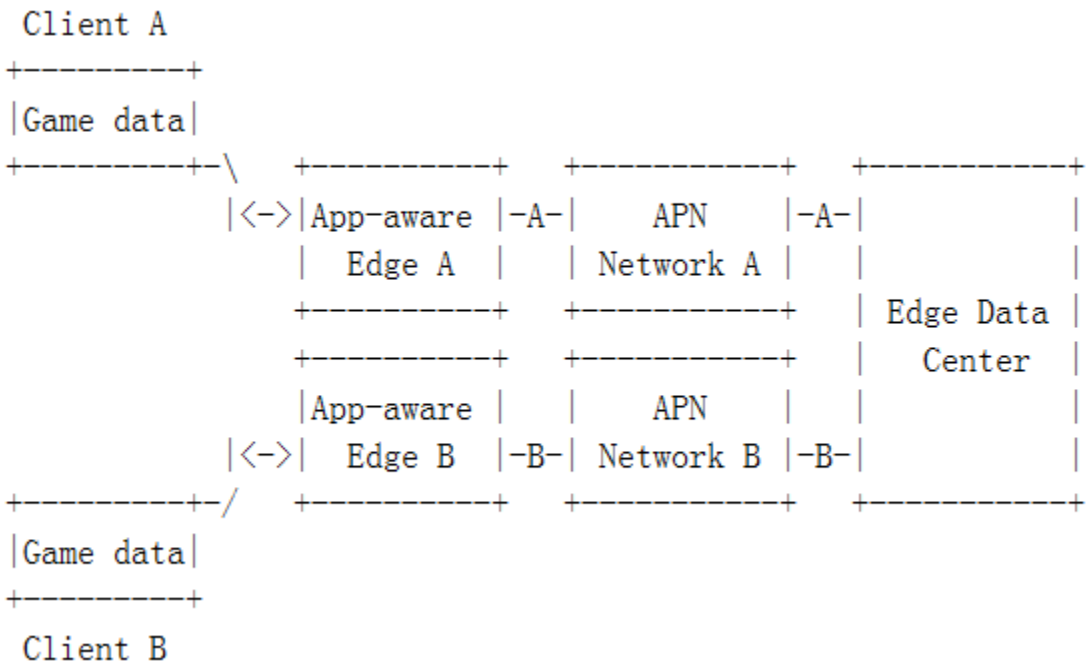
Edge computing can reduce the overall latency of service and reduce the demand for network bandwidth , and APN can achieve:

* Edge device obtains and encapsulates AR application feature information
* Head end/edge node identifies the AR data flow and steers it into a specific transmission path.
* Mid point forwards the data stream along the specific path.
* End point receives AR data stream and forwards it either to Data Centre for processing or to the AR player for playing.

Cloud Gaming

Requirements:

- •High bandwidth for the game video data
- •Low latency for the interaction
- •**Service consistency among multi-users**



Edge computing can reduce the overall latency of service and reduce the demand for network bandwidth , and APN can achieve:

* Multiple edge devices obtain and encapsulate application feature information and send it to the head end node.
* Head end/edge node identifies the data flow, and steers it into a specific transmission path, which needs to **ensure that the latency of multi-user control instructions arriving at the edge data center is consistent**.
* Mid point forwards data stream according to the predetermined path.
* The end point receives the data stream and steers it either to the data center for processing the users' control instruction or to the user for playing.

In Summary

•Edge computing can shorten the path of network transmission by the edge gateway, which can be the head end node of APN, and provide customized services.

•APN provides a way of interaction between application and network, which can make the network understand the requirements of application and improve the quality of service.

•The combination of the two can meet the requirements of many future application scenarios, such as AR, Cloud gaming, remote control in industry.

•More scenarios' discussion are welcome!

Thank you!