Use Cases of Computing-aware SFC & SD-WAN

https://datatracker.ietf.org/doc/draft-zhang-cats-computing-aware-sfc-usecase/

https://datatracker.ietf.org/doc/draft-zhang-cats-computing-aware-sdwan-usecase/

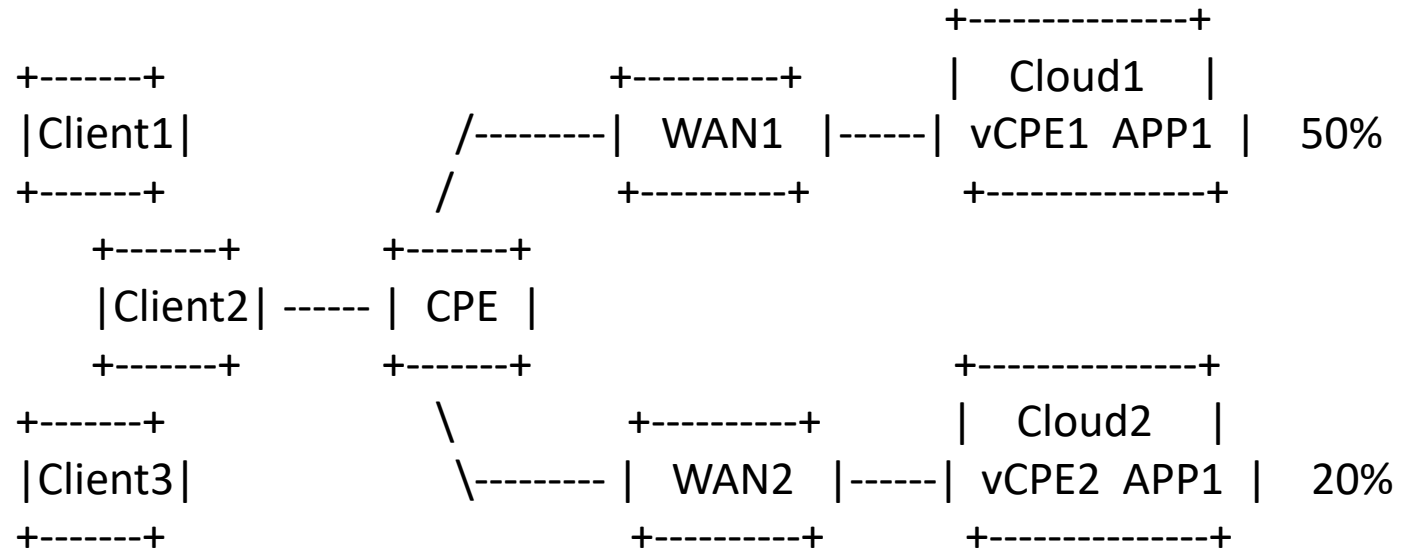Shuai Zhang (China Unicom)

Xia Chen (Huawei)

Jianfei Li (China Unicom)

Cheng Li (Huawei)

Background

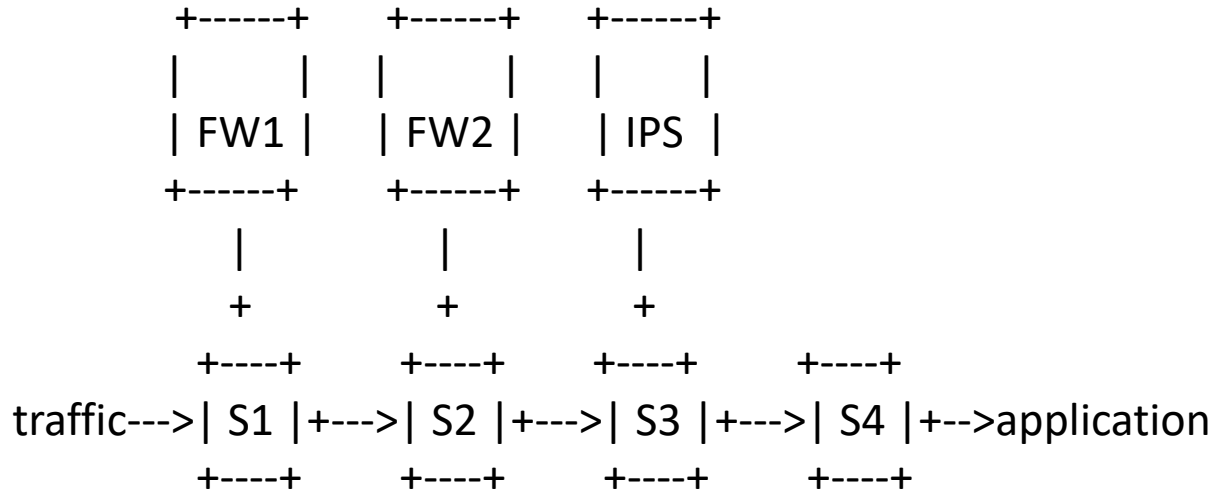- multiple data centers or computing resource pools distributed deployment

- To provide better services

  ➢ In addition to the cost or latency of network paths between the DCs, whether computing resources should be considered？

  ➢ How to measure computing resources？ the number of vCPU？ CPU utilization？ Memory Utilization？ Or others？

  ➢ What technology is used to achieve computing-aware function？

Use Cases of Computing-aware SD-WAN

```
                                                          +--------------+
                                                          |   Cloud1     |
       +-------+                       +---------+        |              |
       |Client1|             /---------|  WAN1   |------| vCPE1  APP1 |   50%
       +-------+            /          +---------+        +--------------+
           +-------+      +-------+
           |Client2| ------ |  CPE  |
           +-------+      +-------+                        +--------------+
       +-------+           \          +---------+        |   Cloud2     |
       |Client3|            \-------- |  WAN2   |------| vCPE2  APP1 |   20%
       +-------+                       +---------+        +--------------+
```
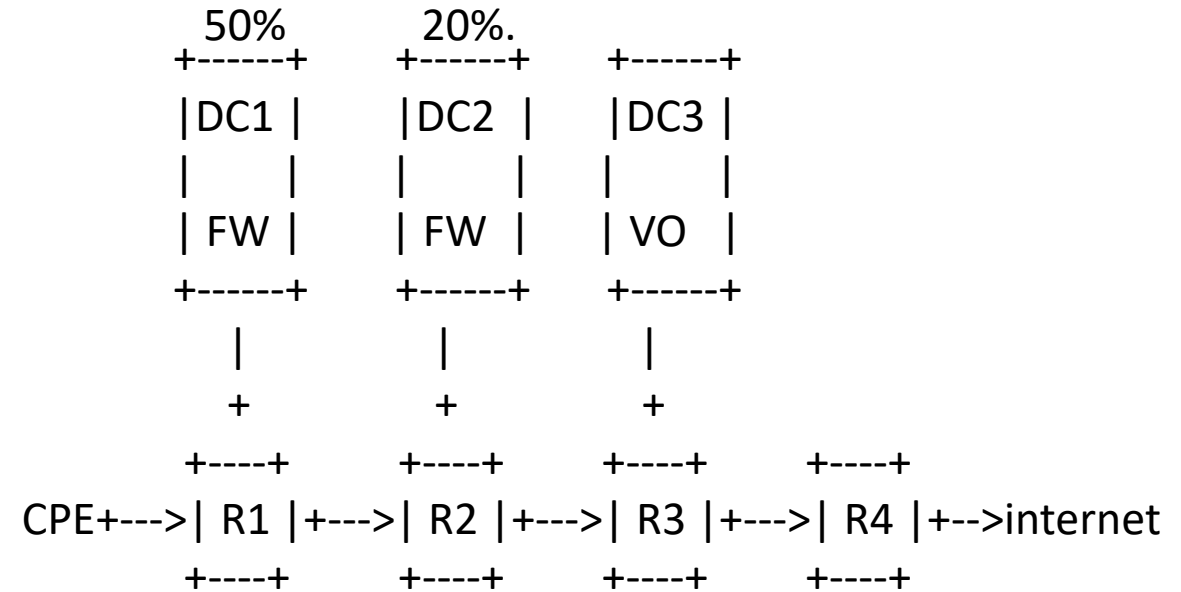
- the same network states;

- Client1 and Client2 visiting APP1 in cloud1;

➤ How about Client3？

➤ Client3 -> CPE ->WAN2-> Cloud2 vCPE2 -> Cloud2 APP1

Use Cases of Computing-aware SFC

```
    +------+      +------+      +------+
    |      |      |      |      |      |
    | FW1  |      | FW2  |      | IPS  |
    +------+      +------+      +------+
       |             |             |
       +             +             +
    +----+        +----+        +----+        +----+
traffic--->| S1 |+--->| S2 |+--->| S3 |+--->| S4 |+-->application
    +----+        +----+        +----+        +----+
```

- to access FW and IPS；
- ➢ multiple SFPs set up;
- ➢ Which one to select?

```
  50%          20%.
+------+      +------+      +------+
|DC1 |        |DC2  |       |DC3 |
|      |      |      |      |      |
| FW |        | FW  |       | VO  |
+------+      +------+      +------+
    |             |             |
    +             +             +
  +----+        +----+        +----+        +----+
CPE+--->| R1 |+--->| R2 |+--->| R3 |+--->| R4 |+-->internet
  +----+        +----+        +----+        +----+
```

- to access FW and VO；
- ➢ Which DC is better to provide FW？
- ➢ CPE ->R1 -> R2 -> DC2 FW -> R2 -> R3 ->DC3 VO
  -> R3 -> R4 -> internet

Next Step

- Solicit comments and refine the draft

- Seeking solutions

Thank You!