



**QTnet** PoC of BNG virtualization and CUPS in fixed telecommunication network

Jan 2024

QTnet, Inc.

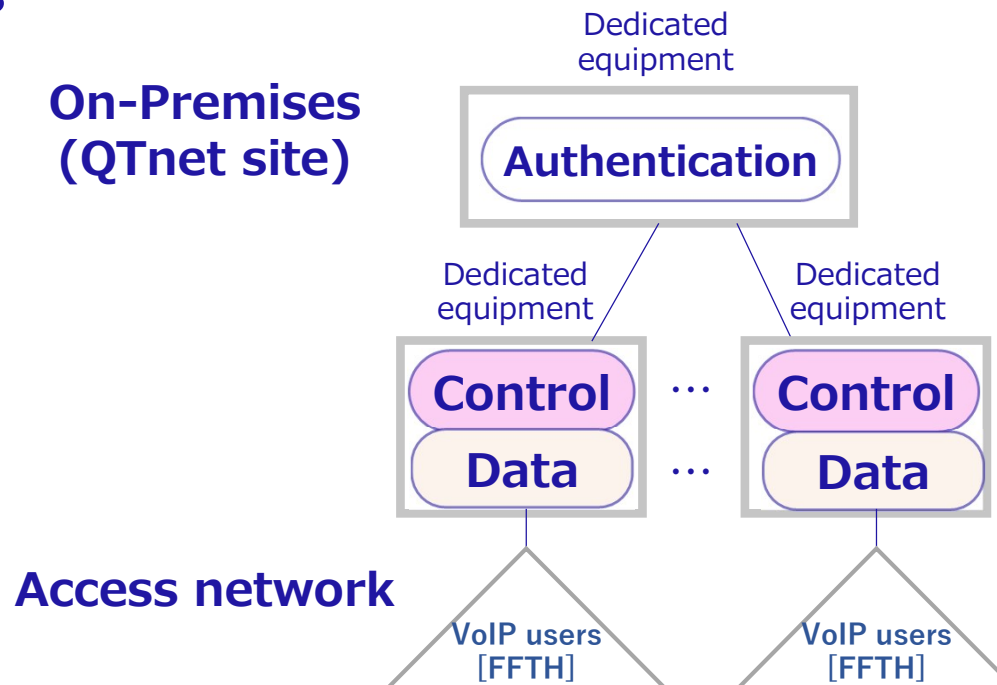
[Press Release] [https://www.qtnet.co.jp/info/?page\\_name=313401:0qptu.265/iunm](https://www.qtnet.co.jp/info/?page_name=313401:0qptu.265/iunm)

# Why virtualize BNGs and enable CUPS

## VOIP BNG is **too expensive**

1. **Overspec HW** is needed to transport VoIP traffic.
2. **HW virtualization** (ex.VC) is too **expensive**
3. HW replacement is required depends on HW lifecycle

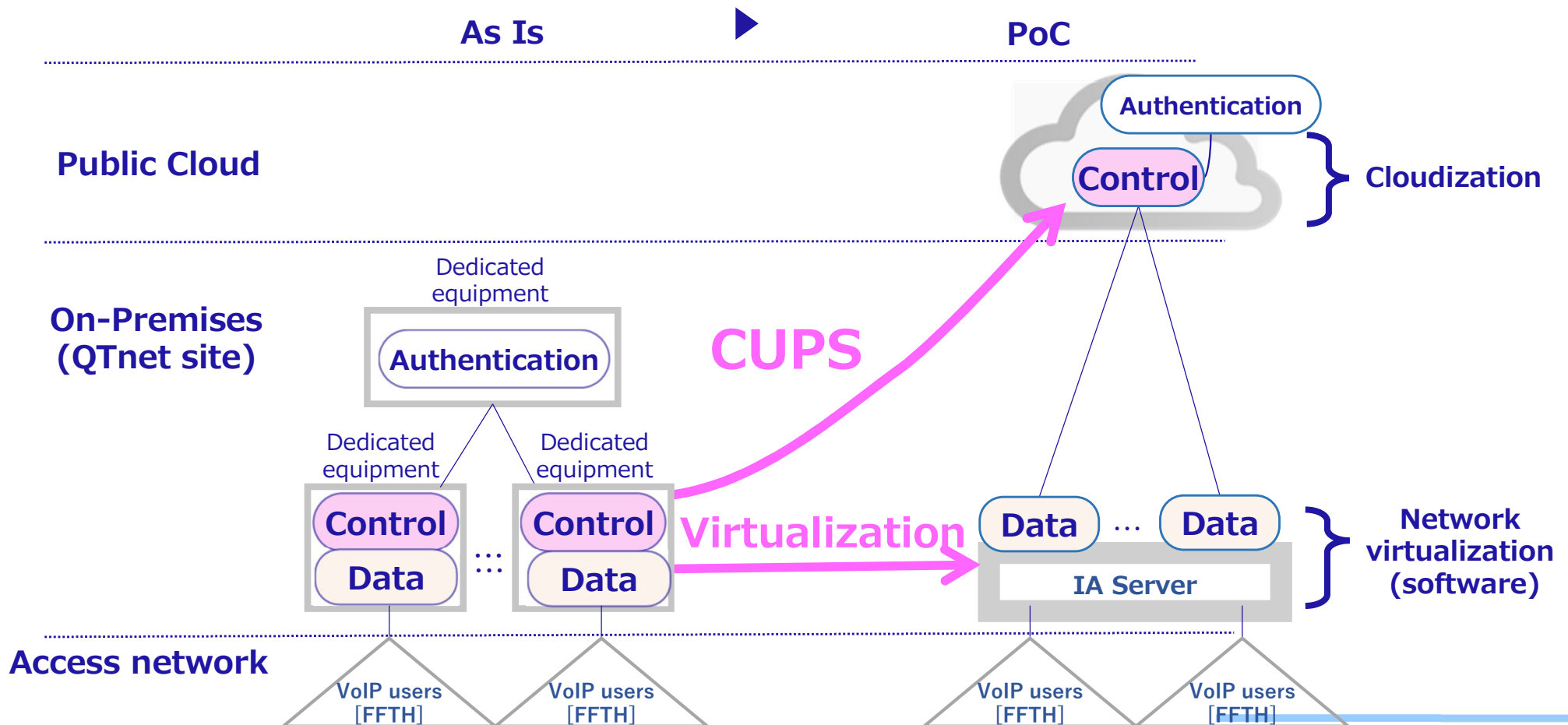
### As Is



# Why virtualize BNGs and enable CUPS

## Our approach

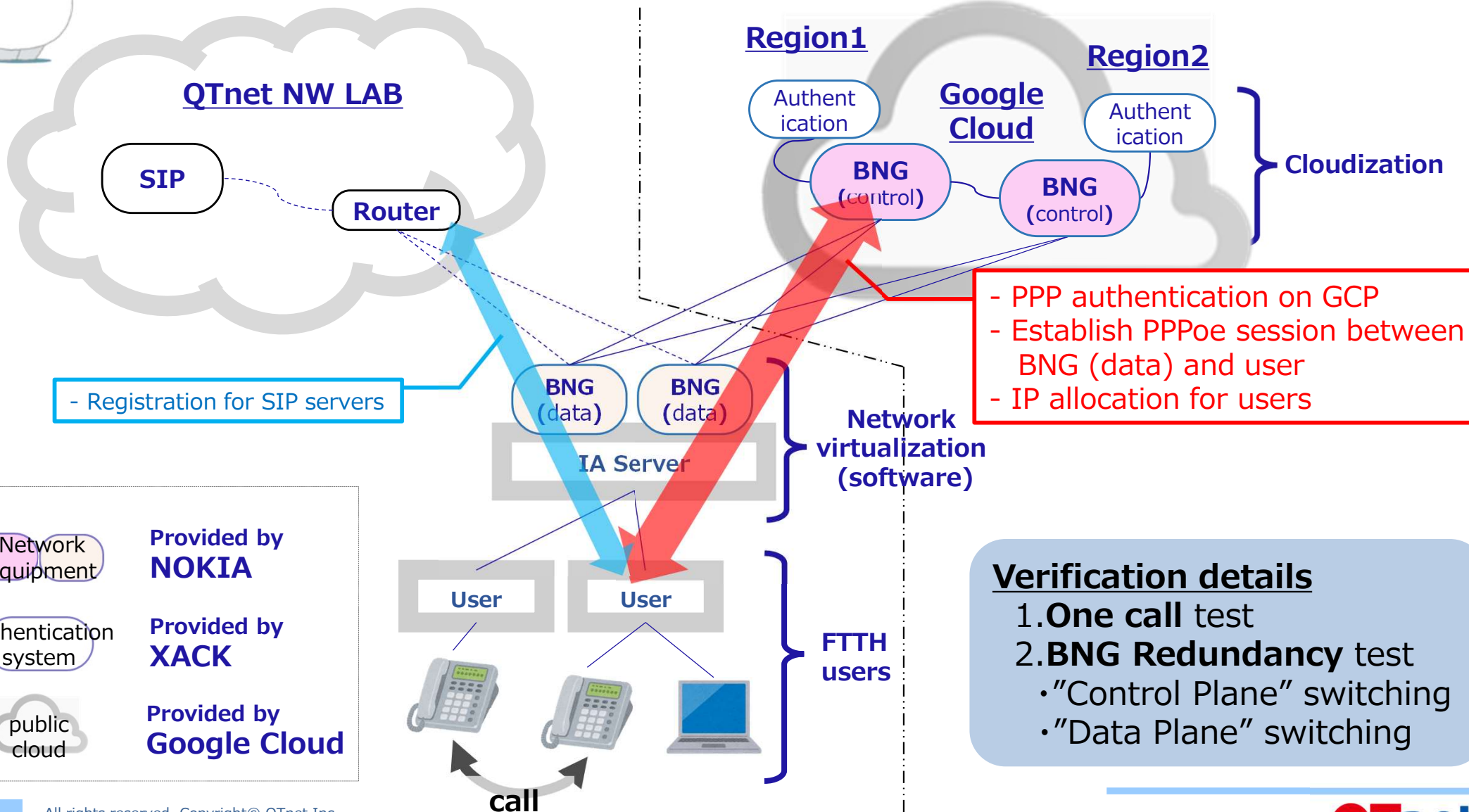
1. More **cost reduction** of VoIP BNGs with **virtualization**
2. **Higher availability** of VoIP BNGs with **CUPS**



# PoC summary about virtualization and CUPS of BNGs



- PoC has been doing in debug yard of **QTnet** and **GCP**.



# About redundancy

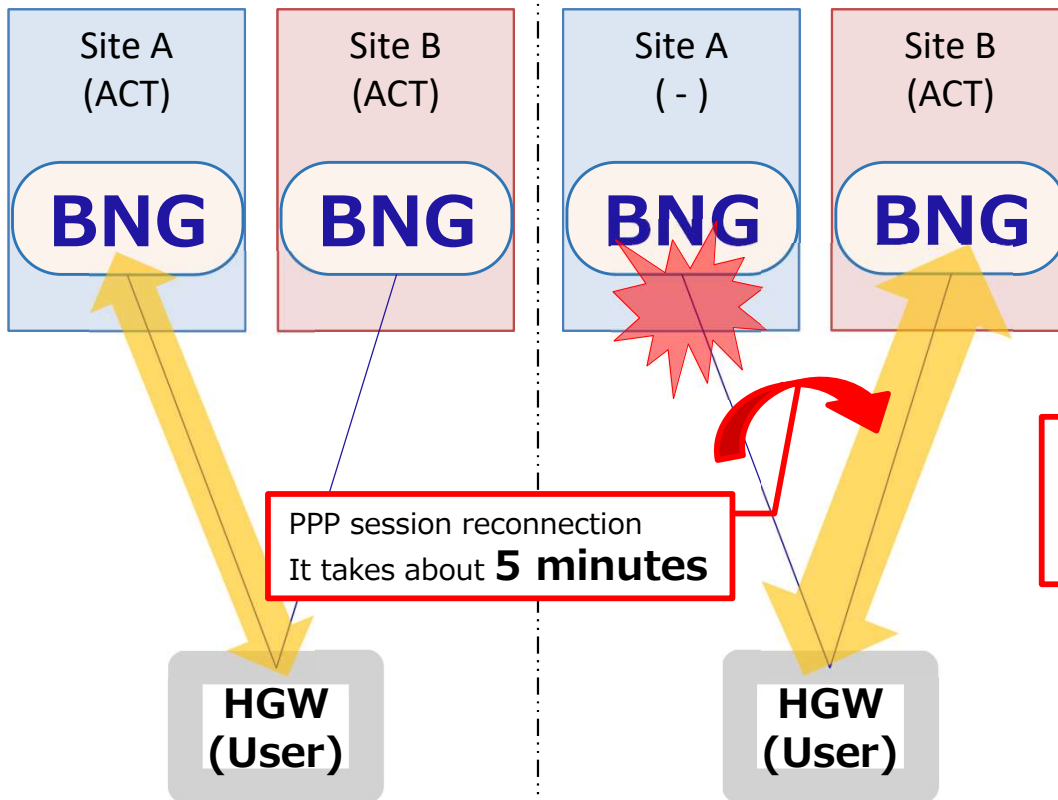


- Currently, it takes about 5 minutes to reconnect the PPP session.
- Functional separation allows continuous use of PPP sessions.

## 【As Is】

Normal time:  
Site A-BNG ⇔ User

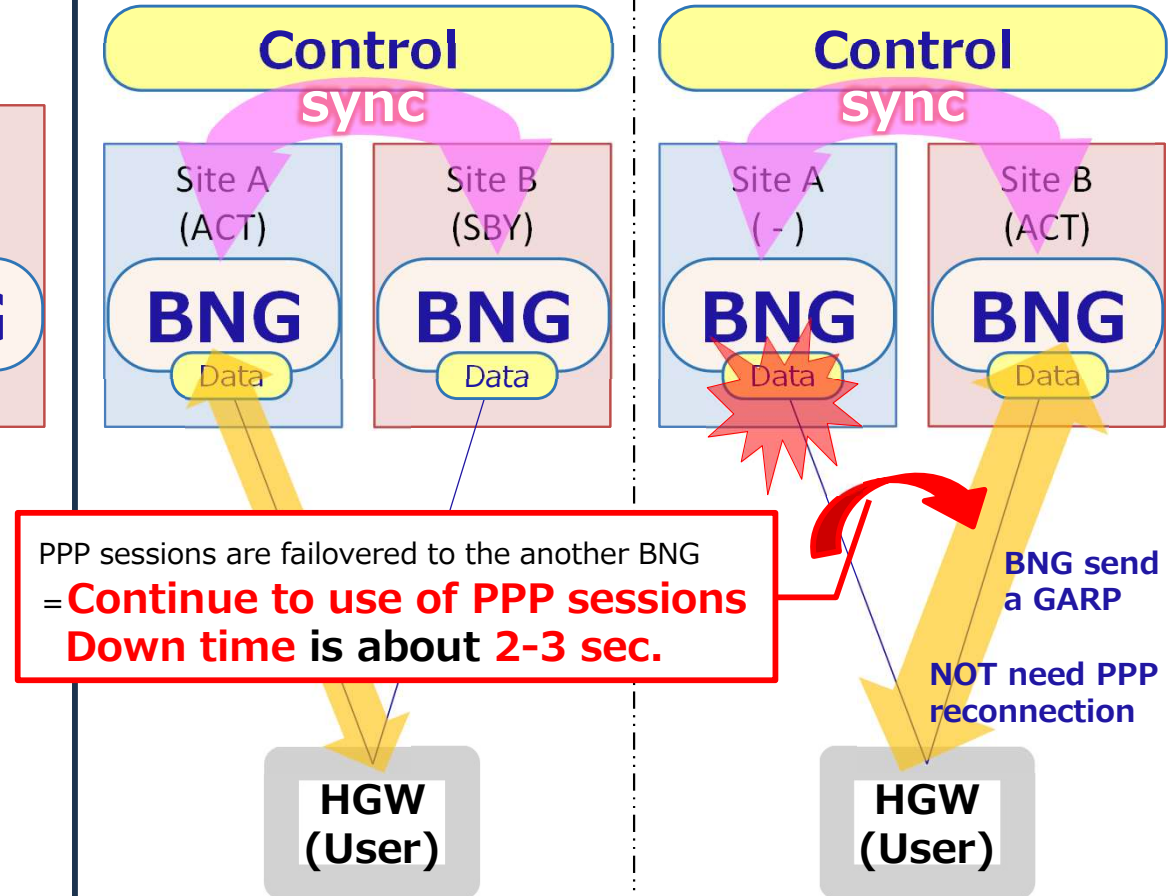
At failure:  
Site B-BNG ⇔ User



## 【PoC】

Normal time:  
Site A-BNG ⇔ User

At failure:  
Site B-BNG ⇔ User

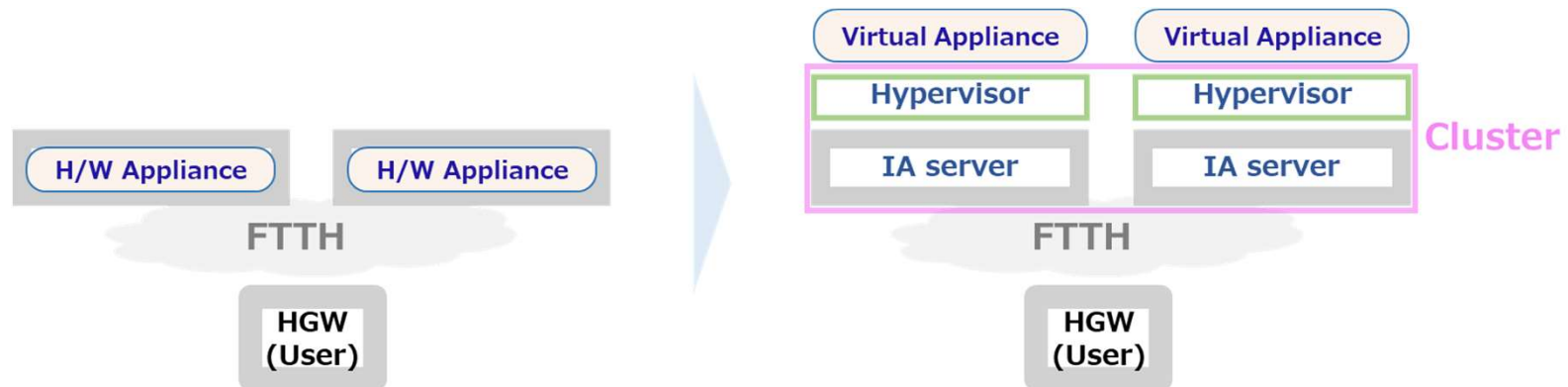


# Effect Measurement



## 1. More cost reduction of VoIP BNGs with virtualization

- Approximately **50% cost reduction** possible with a very rough estimate



## 2. higher availability of VoIP BNGs with CUPS

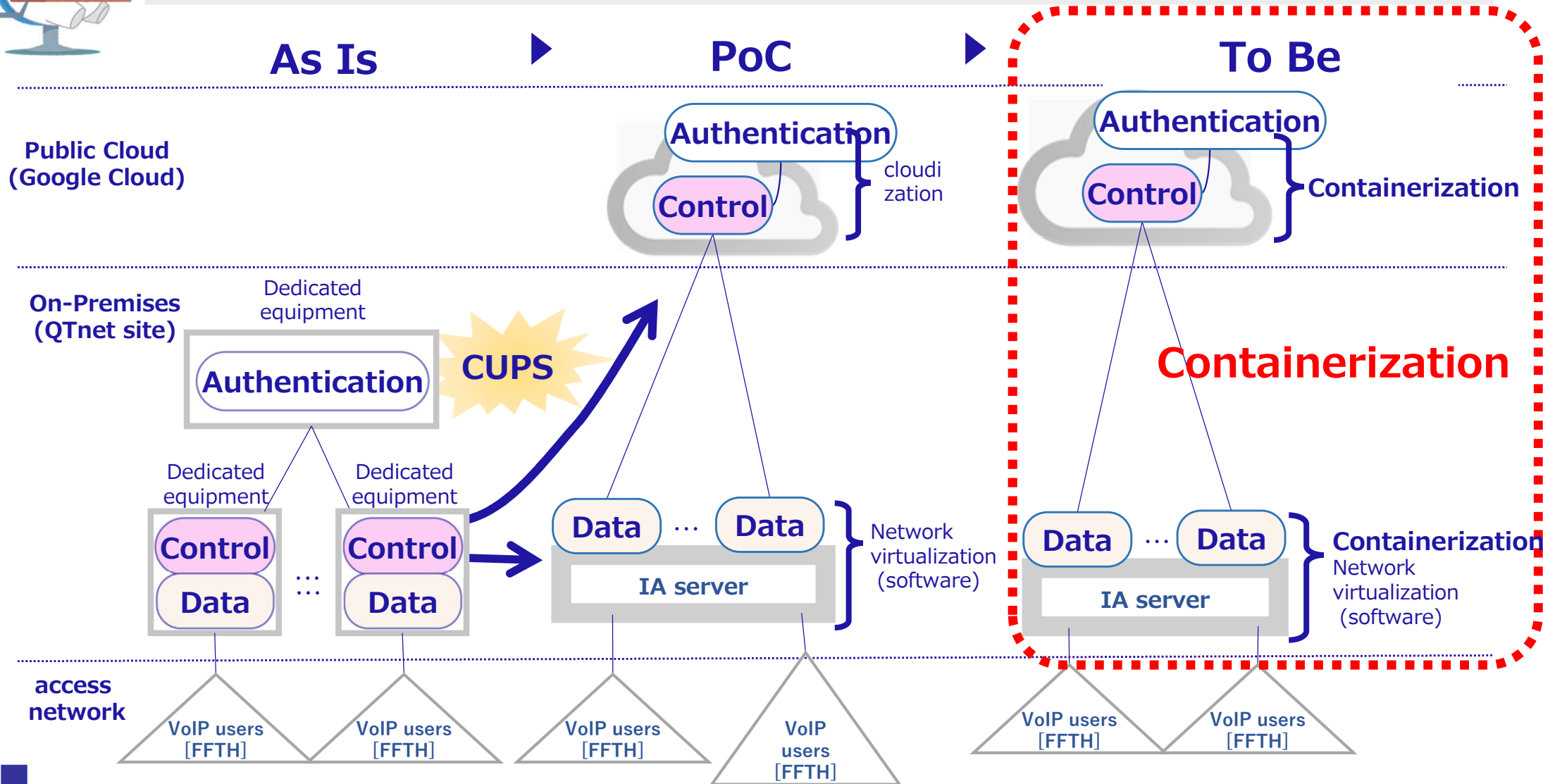
- Confirmed that **PPP session can be maintained** and **down time is about 2-3 sec.**

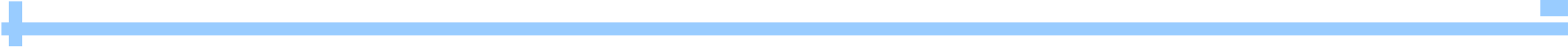


# Future Plans



- We'll continue to consider reducing costs by virtualization and improving fault tolerance through CUPS.
- We'll also consider further efficiency improvements by containerizing CP and UPF.





Our FTTH brand “BBIQ” character

Thank you



Connect-kun

