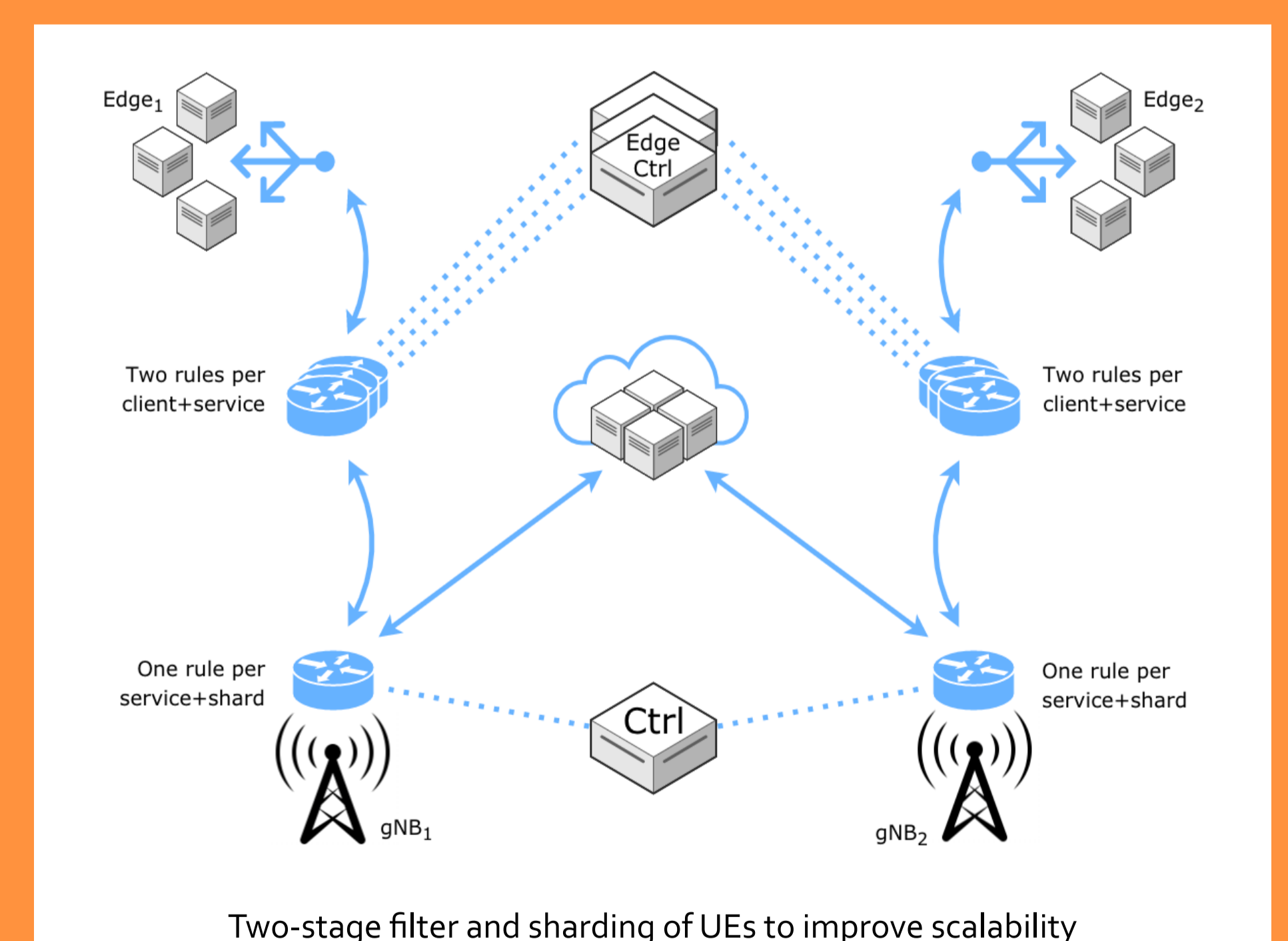# Transparent Access to 5G Edge Computing Services

Josef.Hammer@aau.at, P. Moll, H. Hellwagner

UNIVERSITÄT KLAGENFURT

Use (virtual) cloud service IP addresses to access the local edge instance using SDN

Simplified development

Works with legacy systems

+ Video

NFC

Easy to find closest edge instance

Cloud as fallback if no edge available

Perceived vs. real cloud: The UE seems to communicate with a remote cloud

UE migration (tracked by SDN controller)

Two-stage filter and sharding of UEs to improve scalability
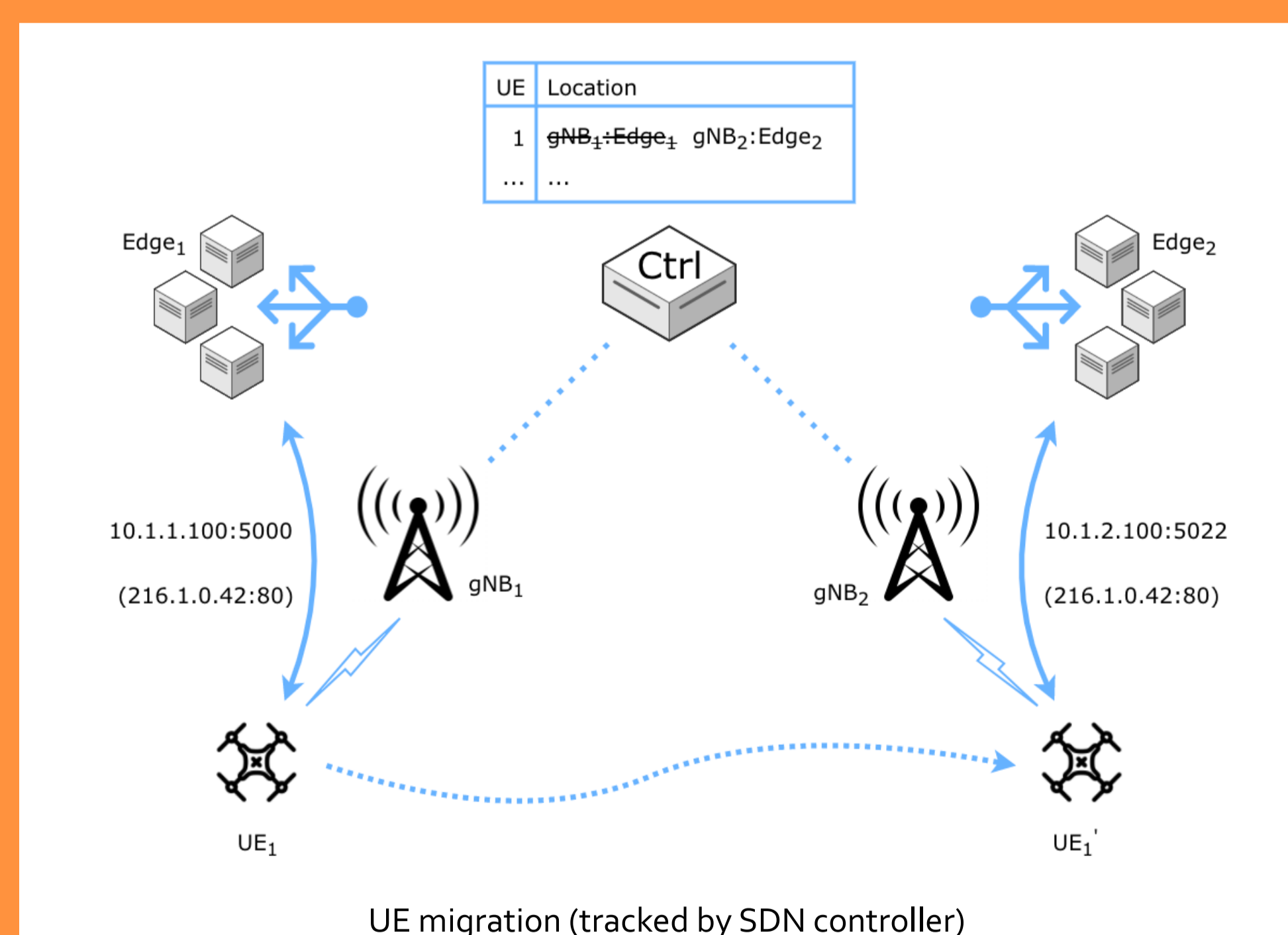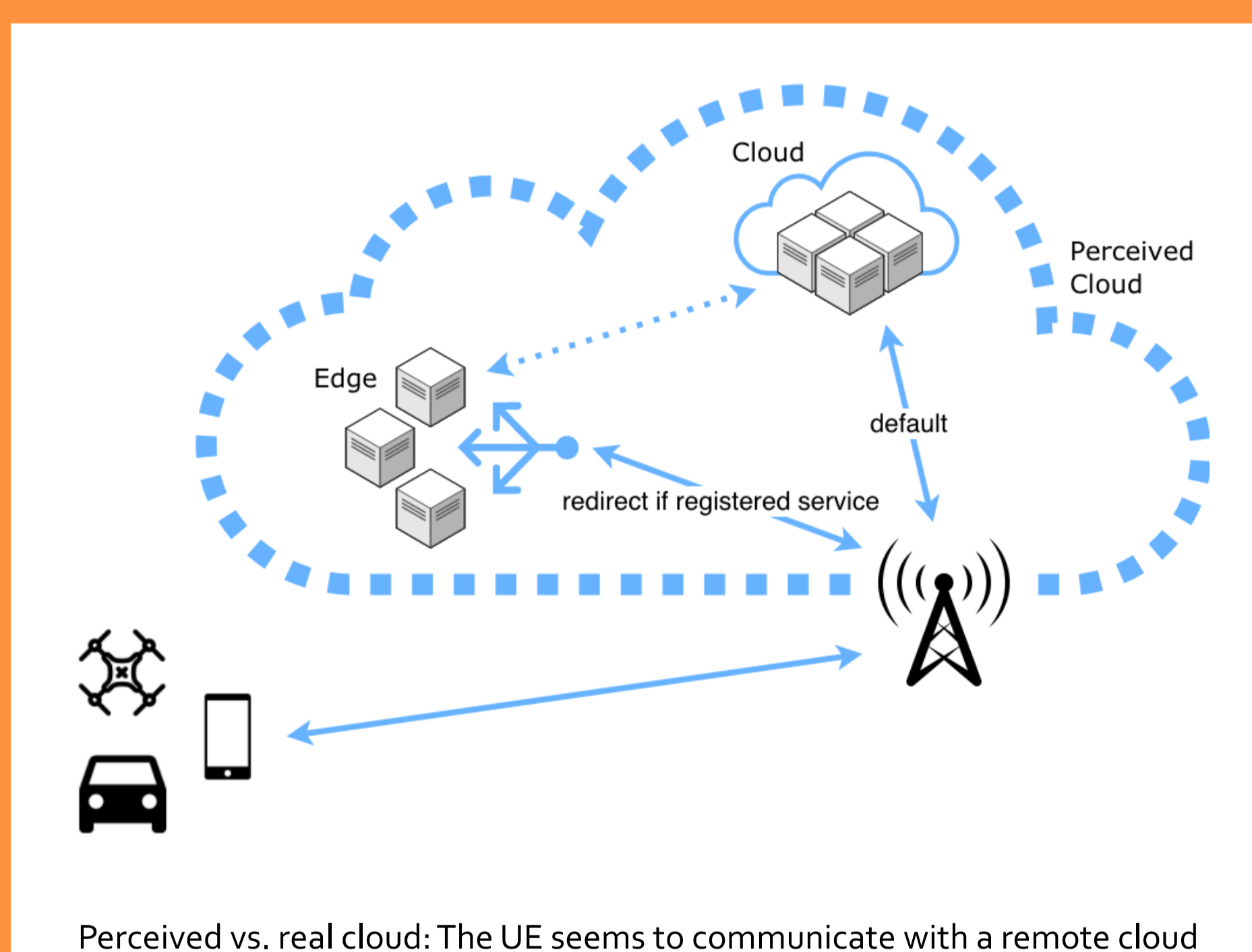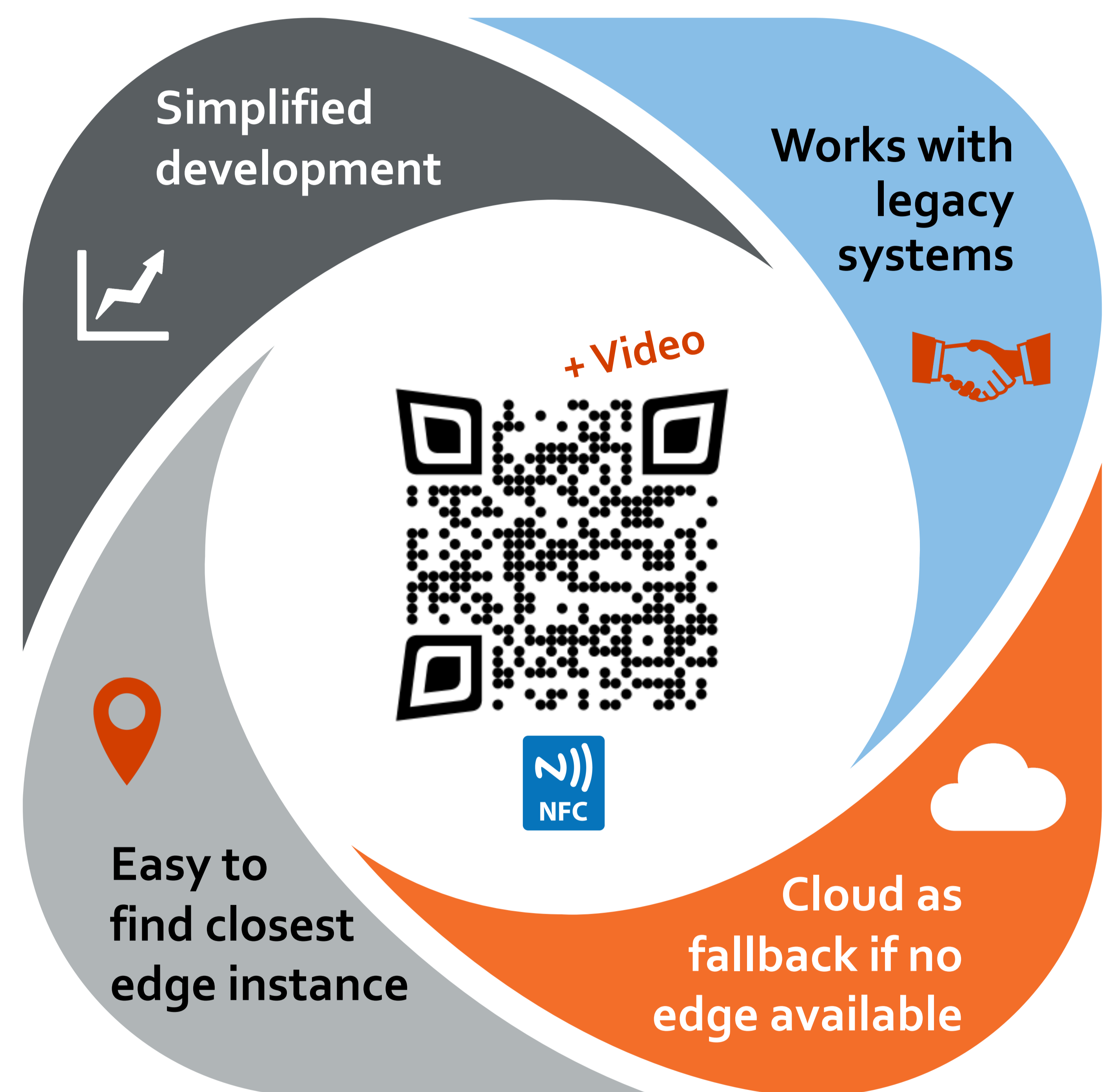
Routing with a registered service IP: The request is redirected to the closest edge server; transparent to the client (UE). For subsequent requests to the same service, the packet is forwarded directly to the edge host (and not to the controller anymore).

The UE never sees the IP of the edge service – all communication happens through the cloud service IP.

Mininet prototype – POX controller.

UE	gNB	SDN Ctrl	Edge	Cloud

216.1.0.42:80/something/

OF.PacketIn: 216.1.0.42:80

OF.FlowMod: Redirect

10.1.1.100:5000/something/

From: 216.1.0.42:80

From: 10.1.1.100:5000

www.aau.at   J. Hammer, P. Moll, H. Hellwagner, "Transparent Access to 5G Edge Computing Services," IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW), 2019   edge.josefhammer.com