Workshop 1: 5G Core Slicing
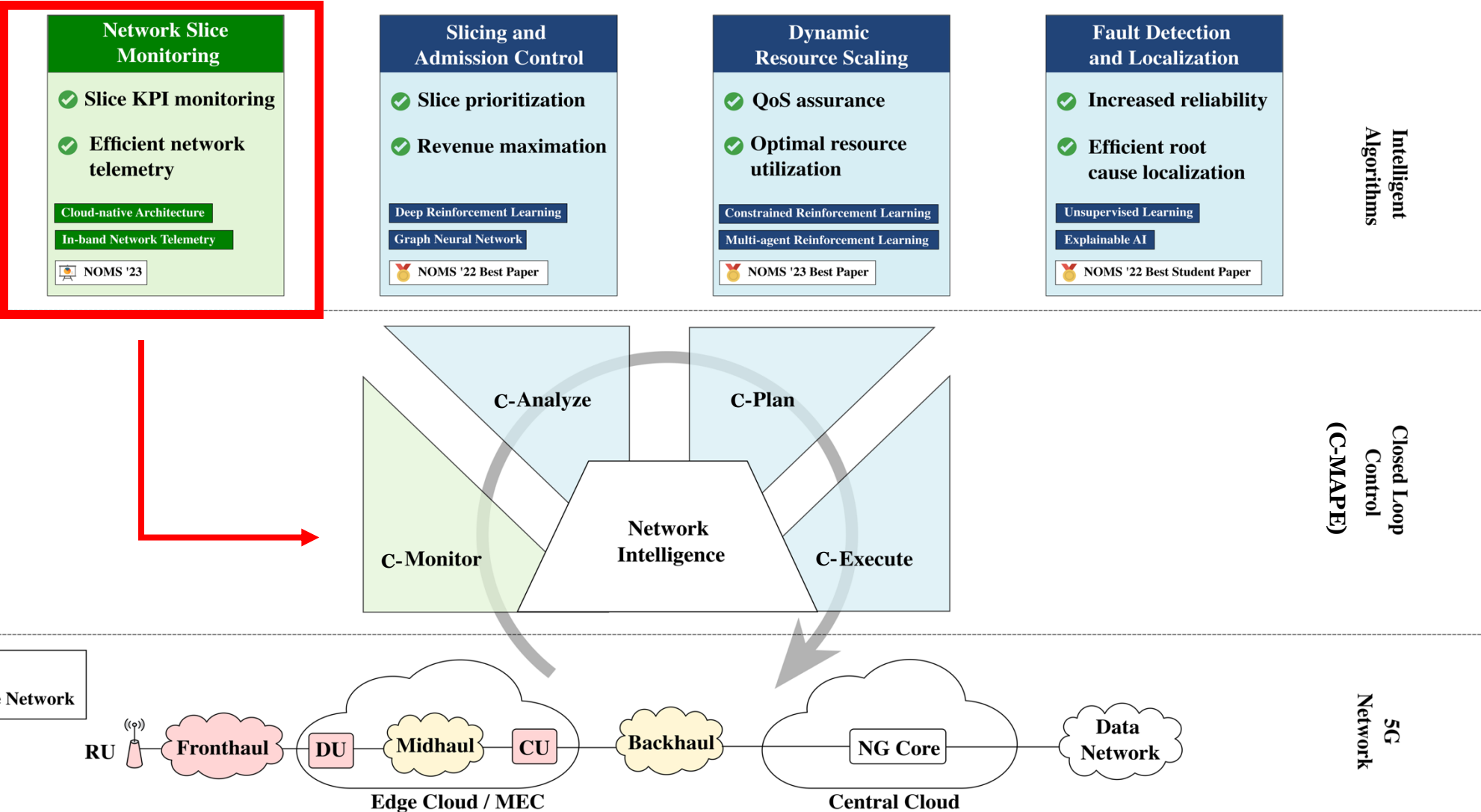## Monitoring 5G Network Slices

Raouf Boutaba

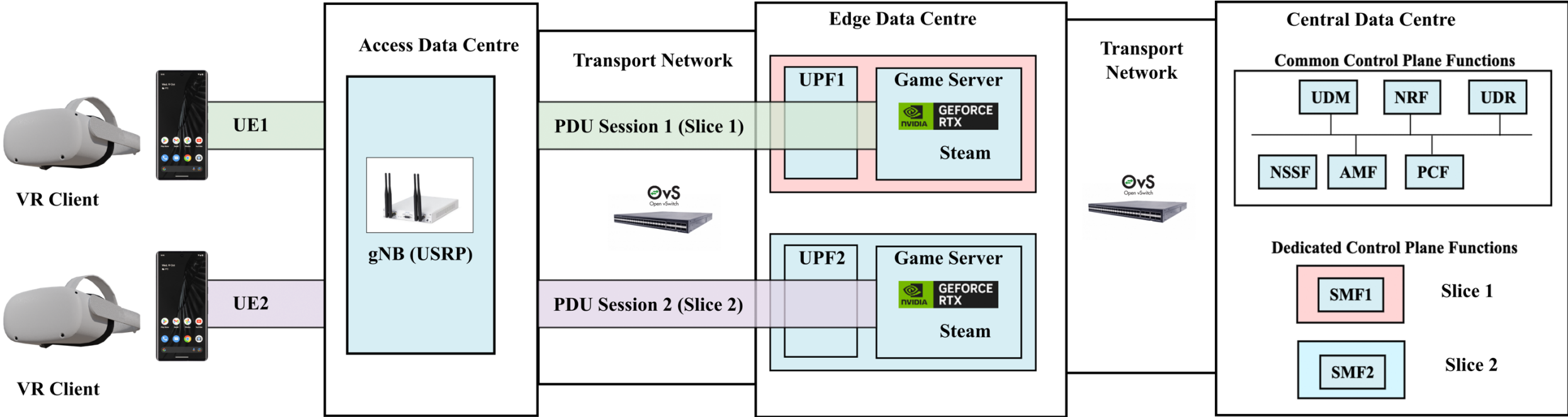David R. Cheriton School of Computer Science
University of Waterloo

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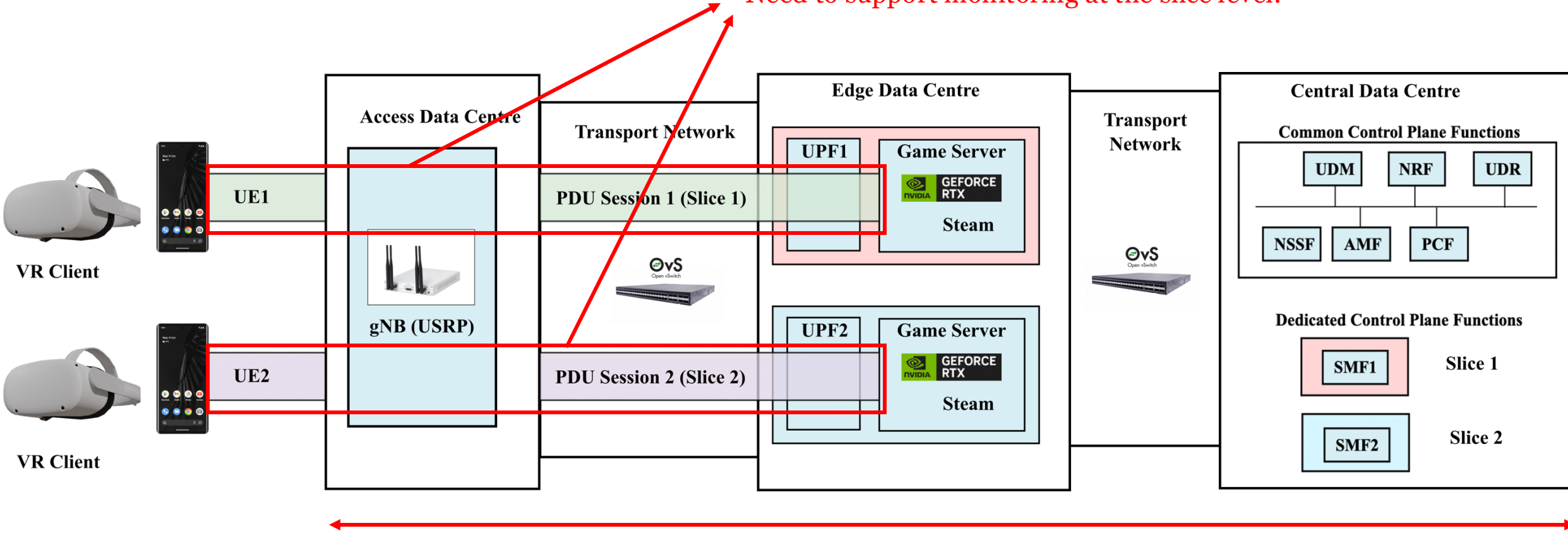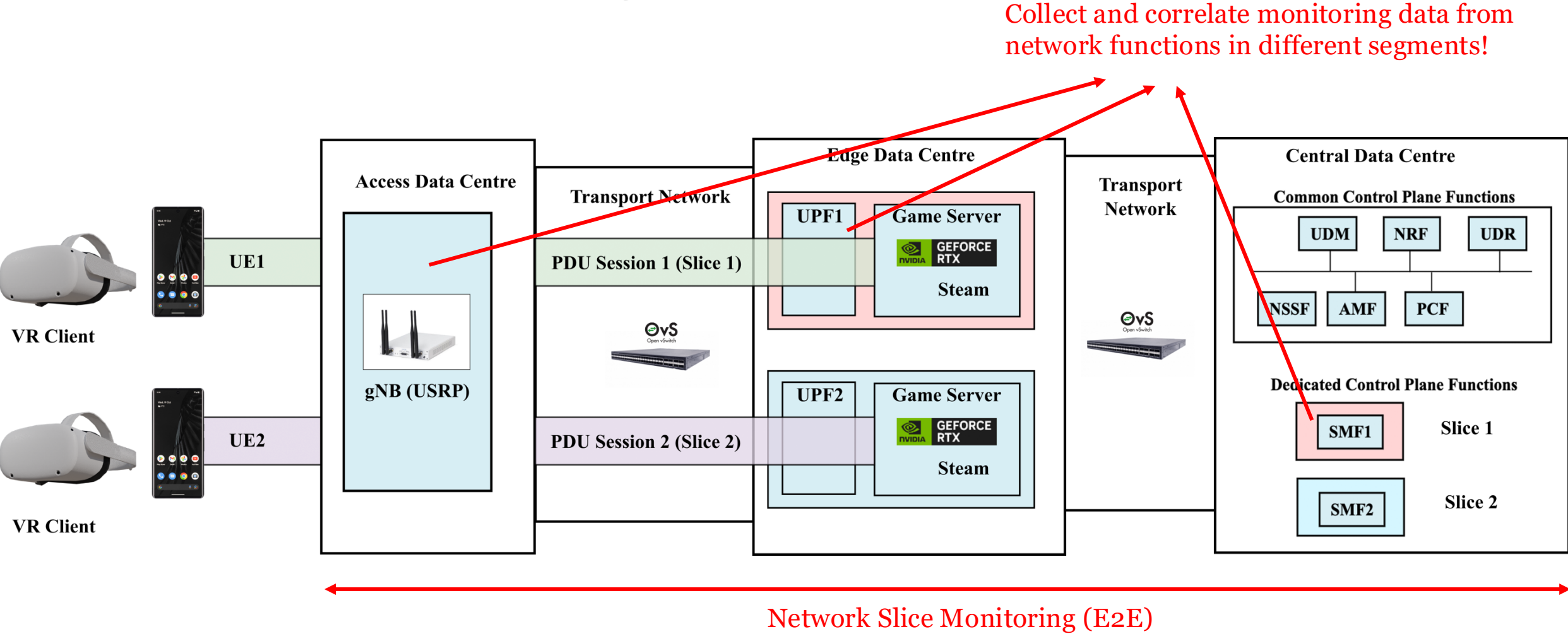# Network Slice Monitoring

Network Slicing

Network Slice Monitoring

Need to support monitoring at the slice level!
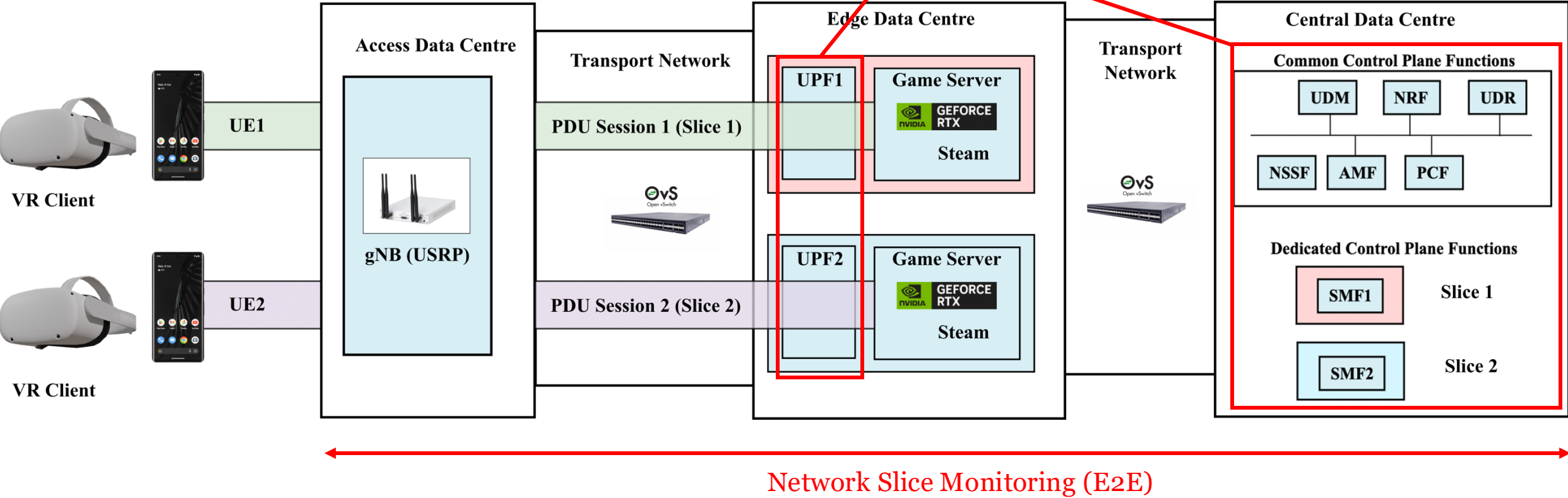
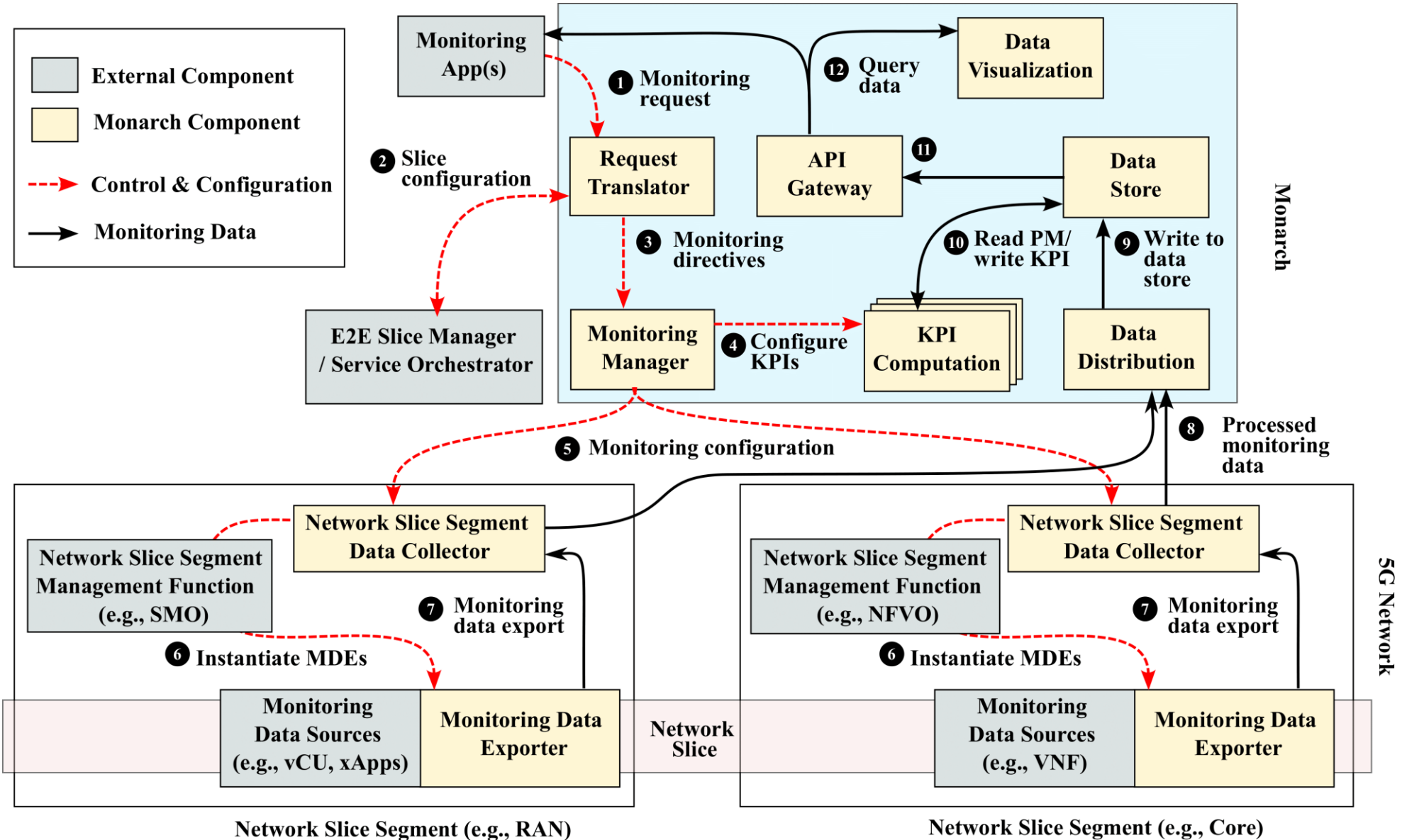Network Slice Monitoring (E2E)

Network Slice Monitoring

Collect and correlate monitoring data from network functions in different segments!

Network Slice Monitoring (E2E)
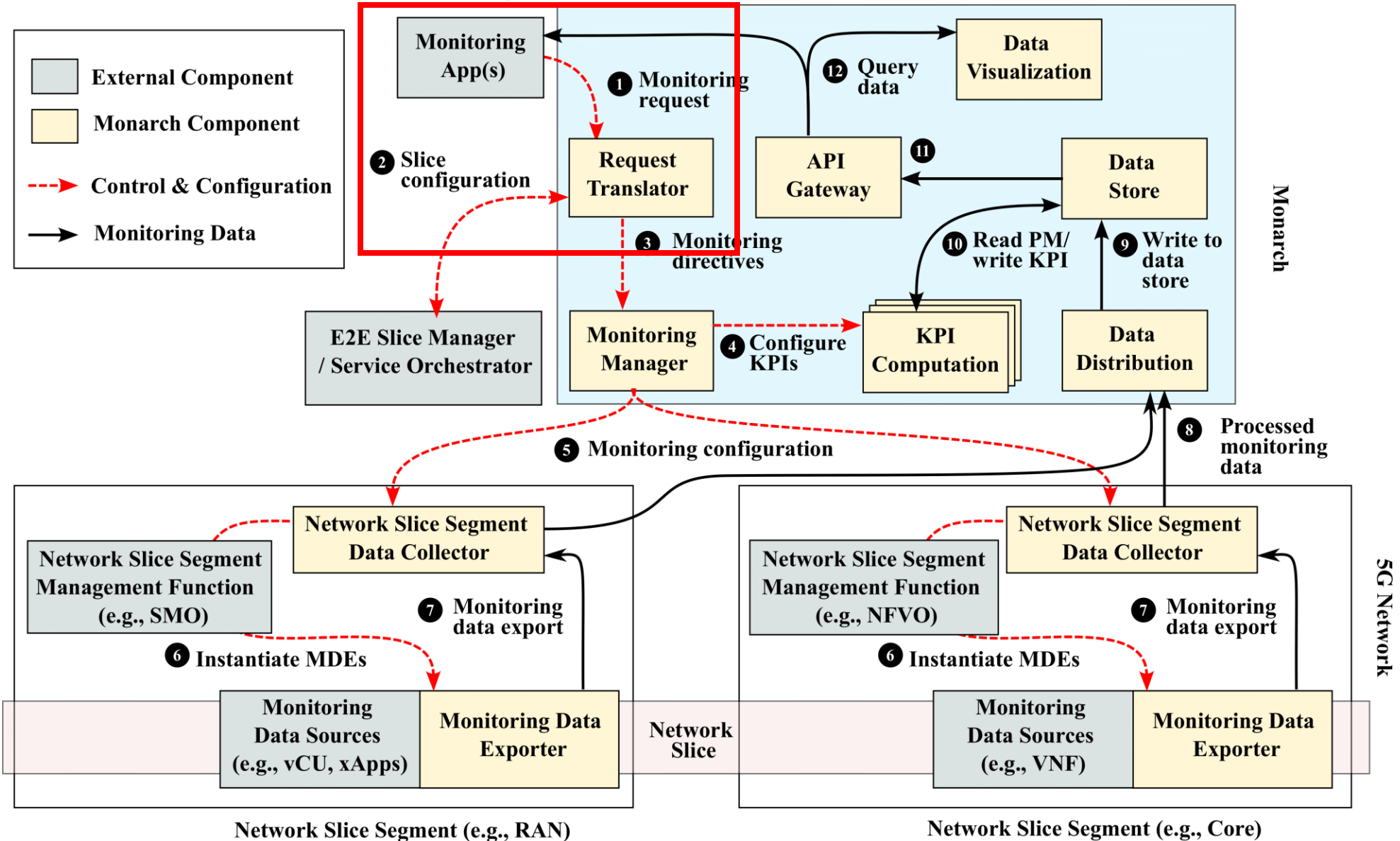
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Network Slice Monitoring

Monitoring must seamlessly integrate with cloud-native network functions!
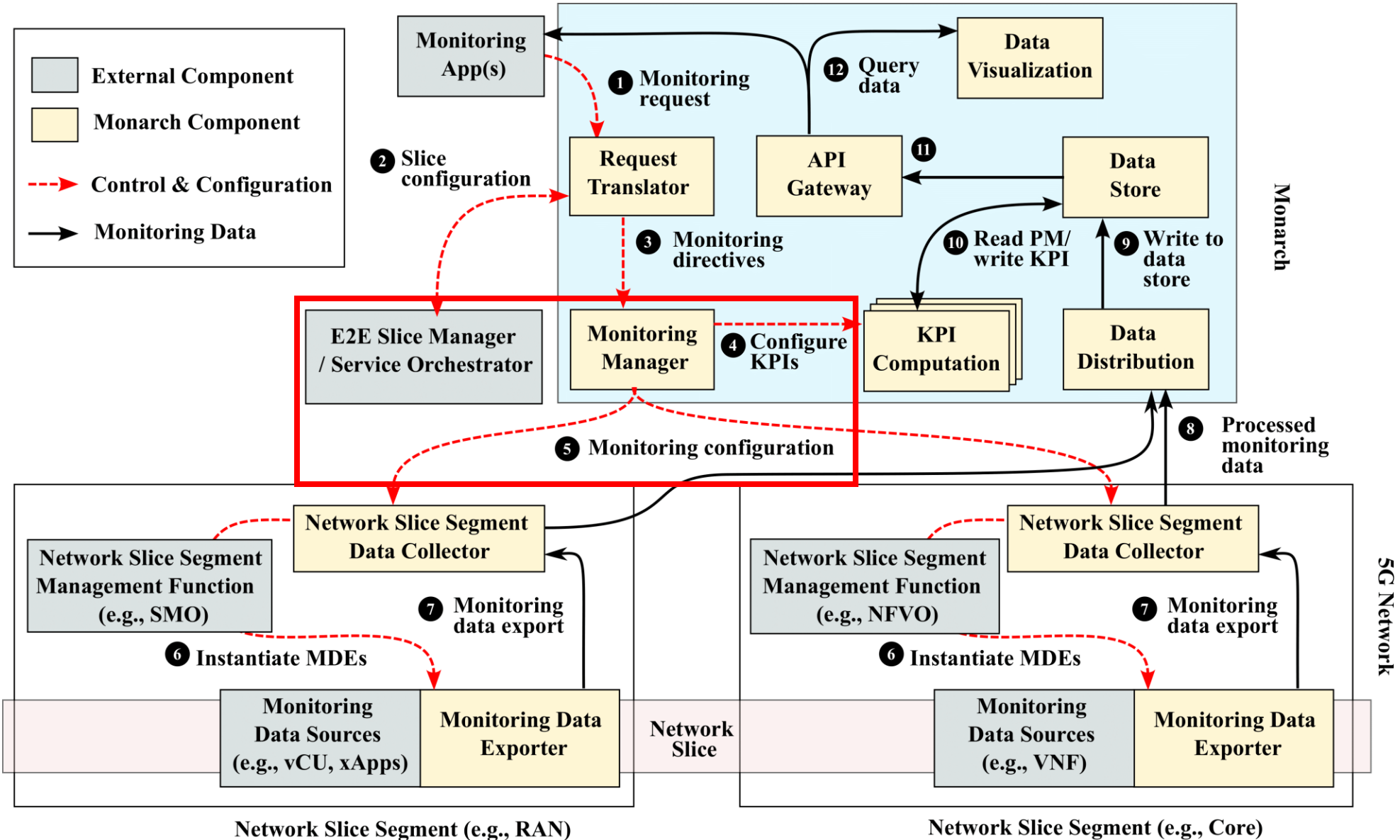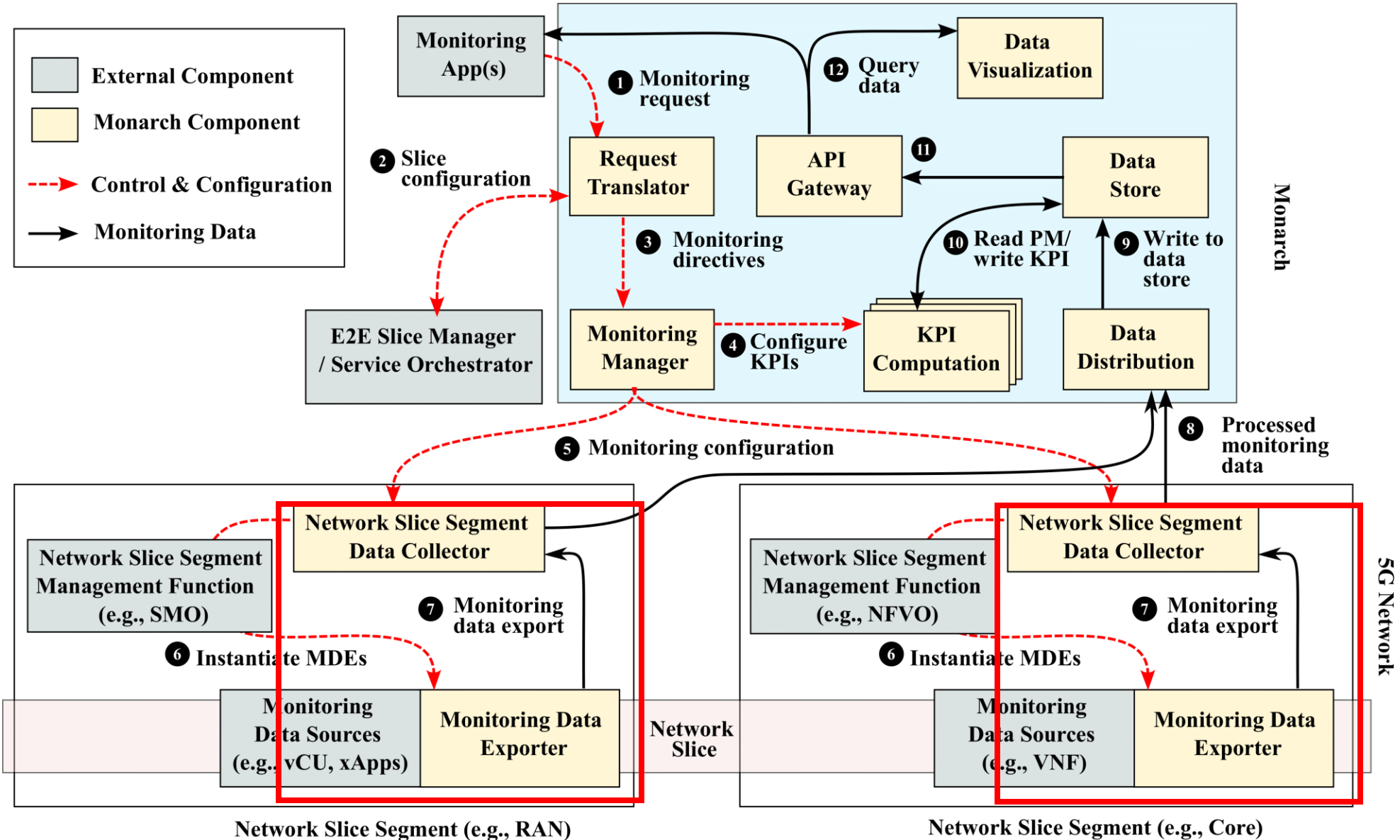
Network Slice Monitoring (E2E)

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Network Slice Monitoring with Monarch

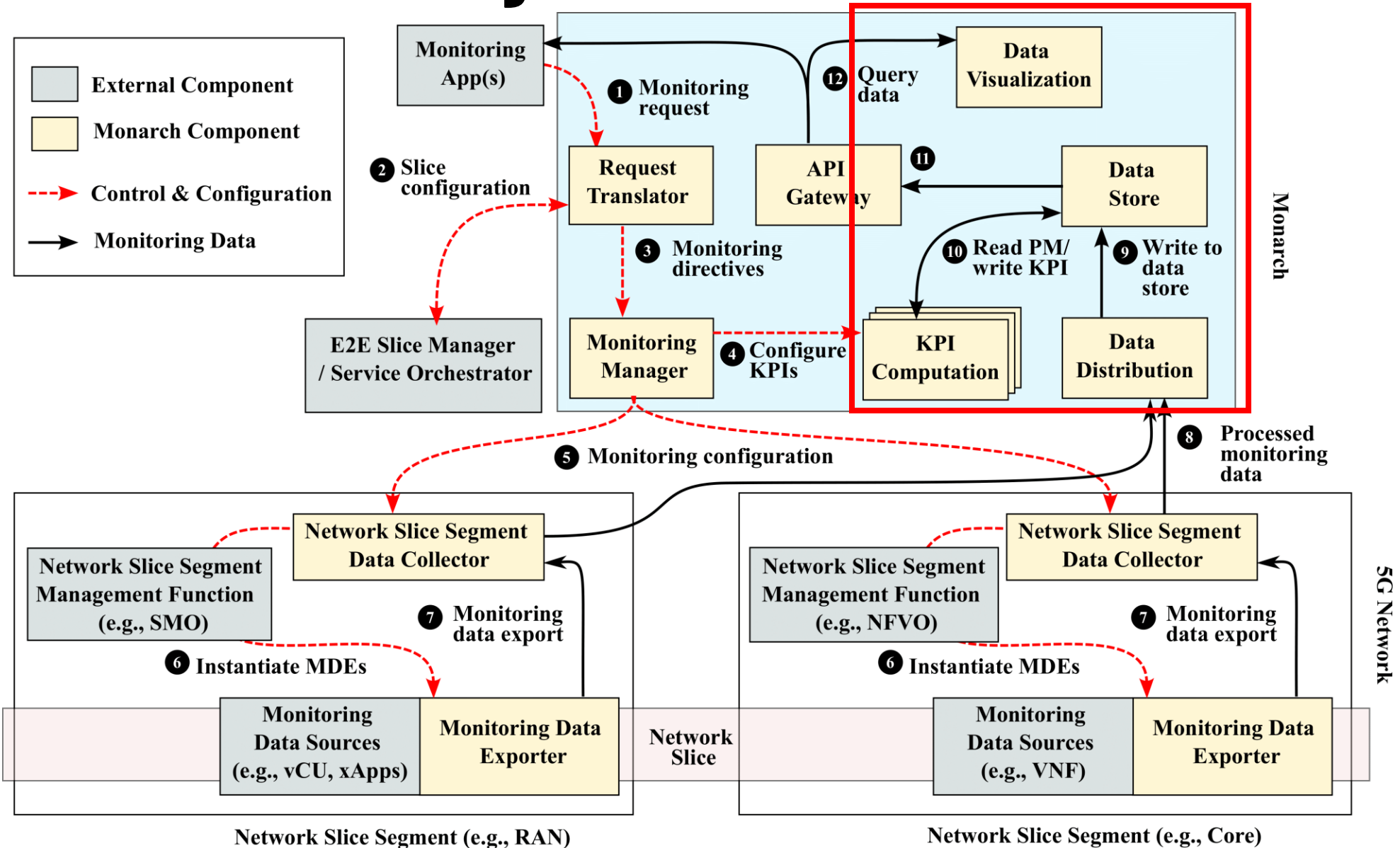# Network Slice Monitoring with Monarch
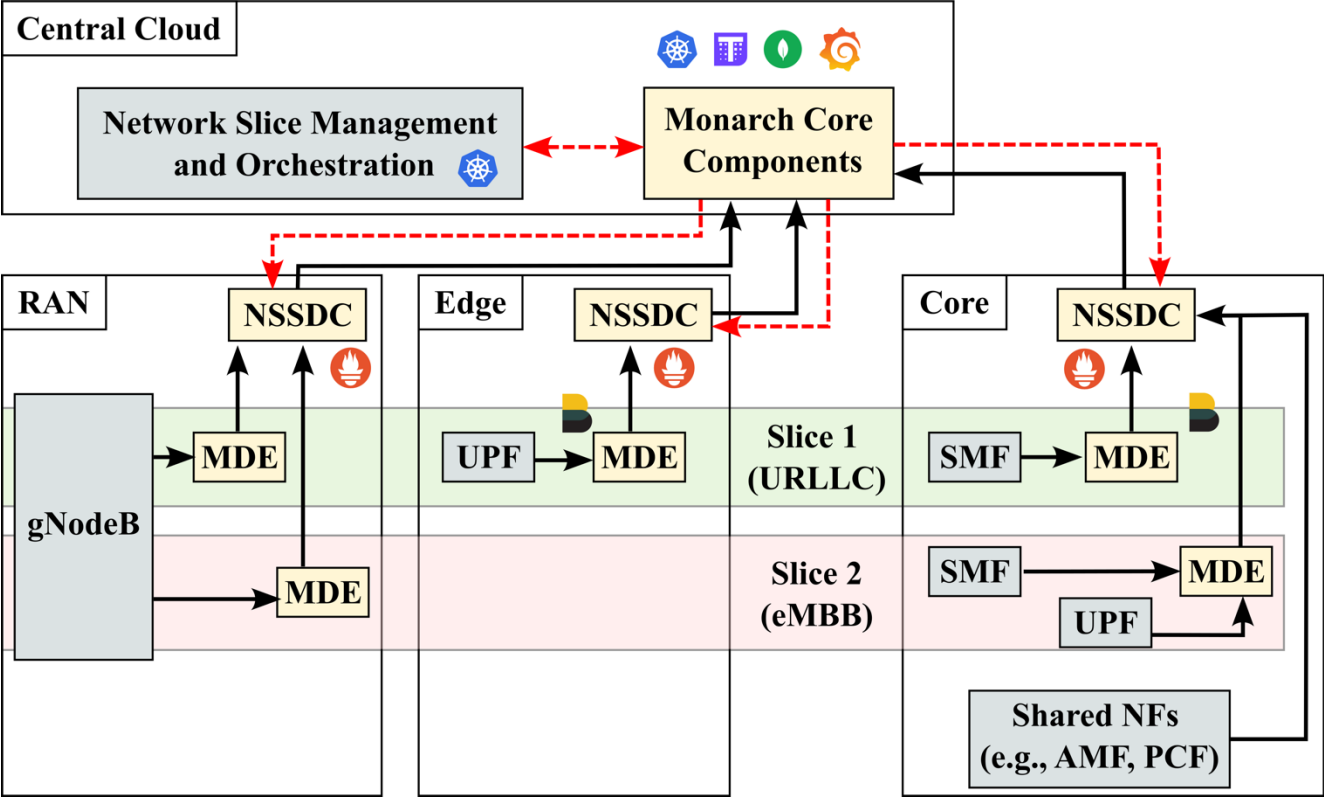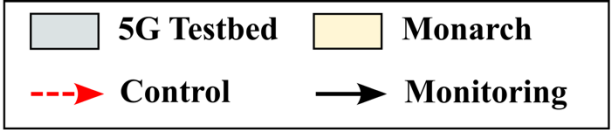
Network Slice Monitoring with Monarch

Network Slice Monitoring with Monarch

Network Slice Monitoring with Monarch

Monarch Implementation

Implemented on 5G slicing testbed built using **Open5GS** as core and **UERANSIM** as gNB and UE emulator

```
{
    "monitoring_request": {
        "measurement_unit": "service",
        "metric": "throughput",
        "entity": {
            "type": "slice",
            "id": { "snssai": ["<snssai>"] },
            "aggregation": "none",
        },
        "method": {
            "type": "polling",
            "polling_frequency": "fixed: 5s",
        },
        "duration": "10m",
    }
}
```

Figure: Monarch request API

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Session Overview

1. **Deploy Monarch and Configure it for Slice-Level Data Collection**

   Set up Monarch to collect slice-specific data from the network slicing environment deployed in the morning session.

2. **Hands-On Monitoring with Prometheus**

   Explore Prometheus, the open-source tool used by Monarch, and learn how to use PromQL for querying 5G metrics and monitoring network function resource usage.

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