

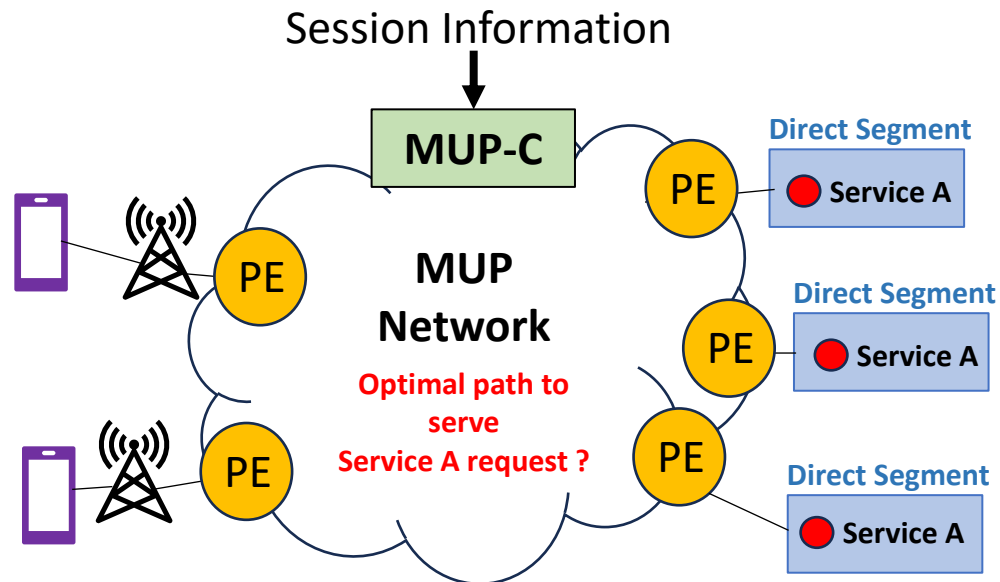
Computing Aware Traffic Steering Consideration for Mobile User Plane Architecture

draft-dcn-dmm-cats-mup-03

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This Document's Target Problem

- Draft [draft-mhkk-dmm-mup-architecture](#) proposes a Mobile User Plane architecture for DMM in which a MUP controller converts mobility session information into Dataplane routing information
- This document aims to **enhance this MUP architecture to with Computing-Aware Traffic Steering (CATS) concept** from CATS WG.
 - to address the optimal routing path problem in multiple service instances network scenario



→ Multiple service instances of the same service running at different location

→ To select optimal route, it is important to consider network and service metrics related to each service instance.

↓
Using CATS concept

Updates (in red)

- Centralized CATS-MUP
 - Route information (revise necessary information in routes' NLRI)
 - New UE request handling procedure
 - UE mobility handling procedure
- Distributed CATS-MUP
 - Route information (revise necessary information in routes' NLRI)
 - New UE request handling procedure
 - UE mobility handling procedure

How to integrate CATS into MUP?

- Centralized CATS-MUP
 - Centralized Optimal Path Selector function at MUP-C
- Distributed CATS-MUP
 - Distributed Optimal Path Selector function at each RAN PE

Centralized CATS-MUP

- **1 Direct Segment = 1 Service Instance of a Service**
- Below are information should be included in the route NLRI

1. Direct Segment Discovery Route advertises

Direct Segment reachability information

- CIS-ID (can be used as Direct Segment ID)
- CS-ID
- Corresponding PE SRv6 SID

2. CATS metric update Route advertises

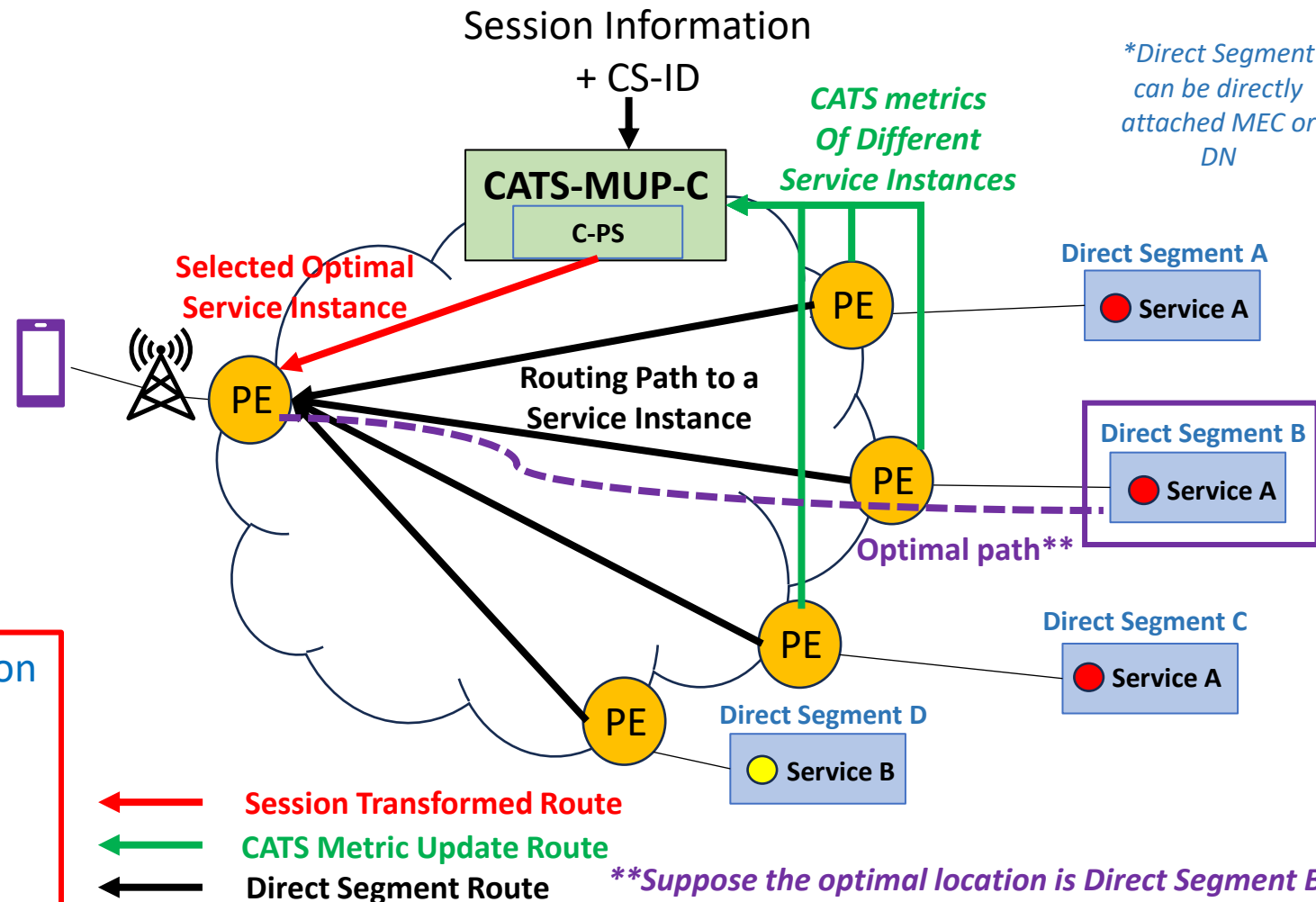
service deployment information and metrics related to each instance

- CIS-ID (can be used as Direct Segment ID)
- CS-ID
- CATS Metrics

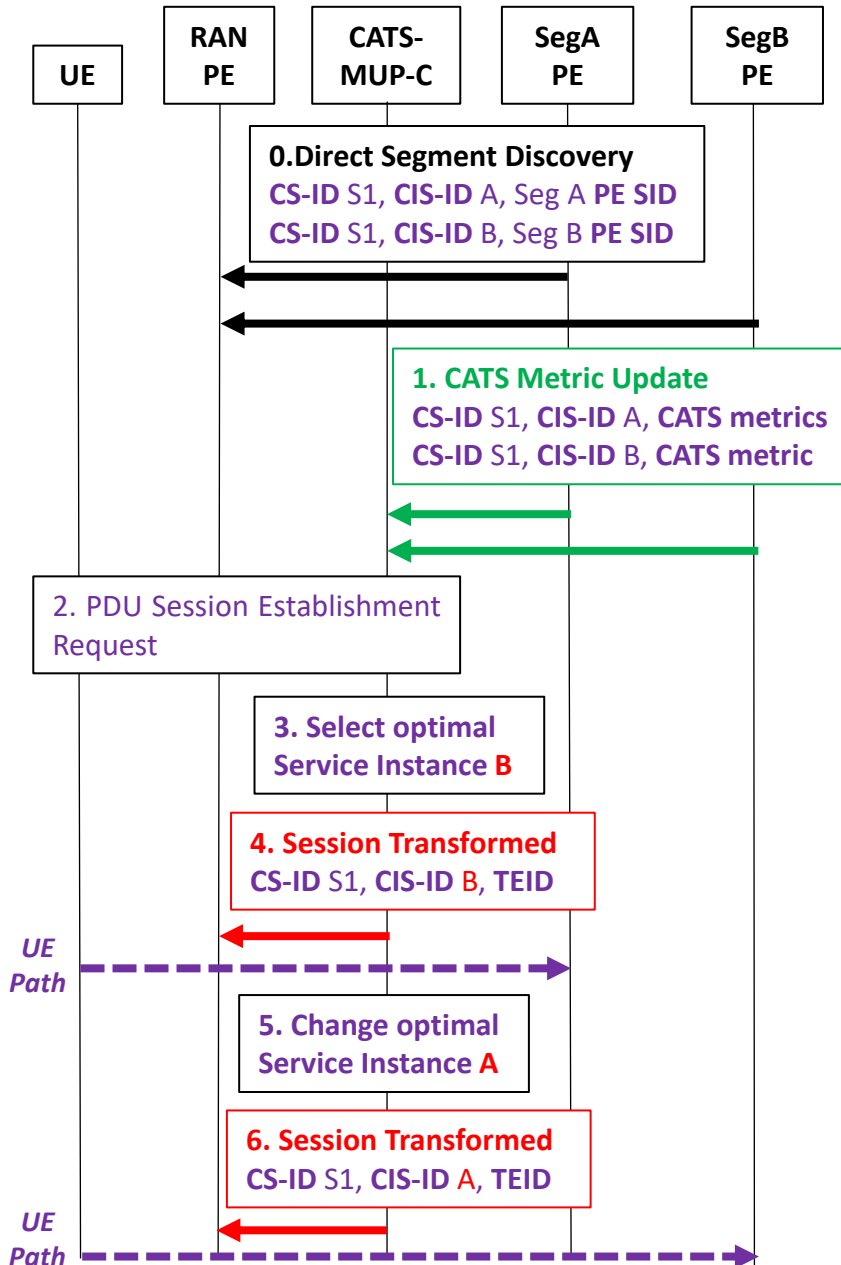
3. Session Transformed Route: map session information to the the optimal Direct Segment information

- **Optimal** CIS-ID
- CS-ID
- Session TEID

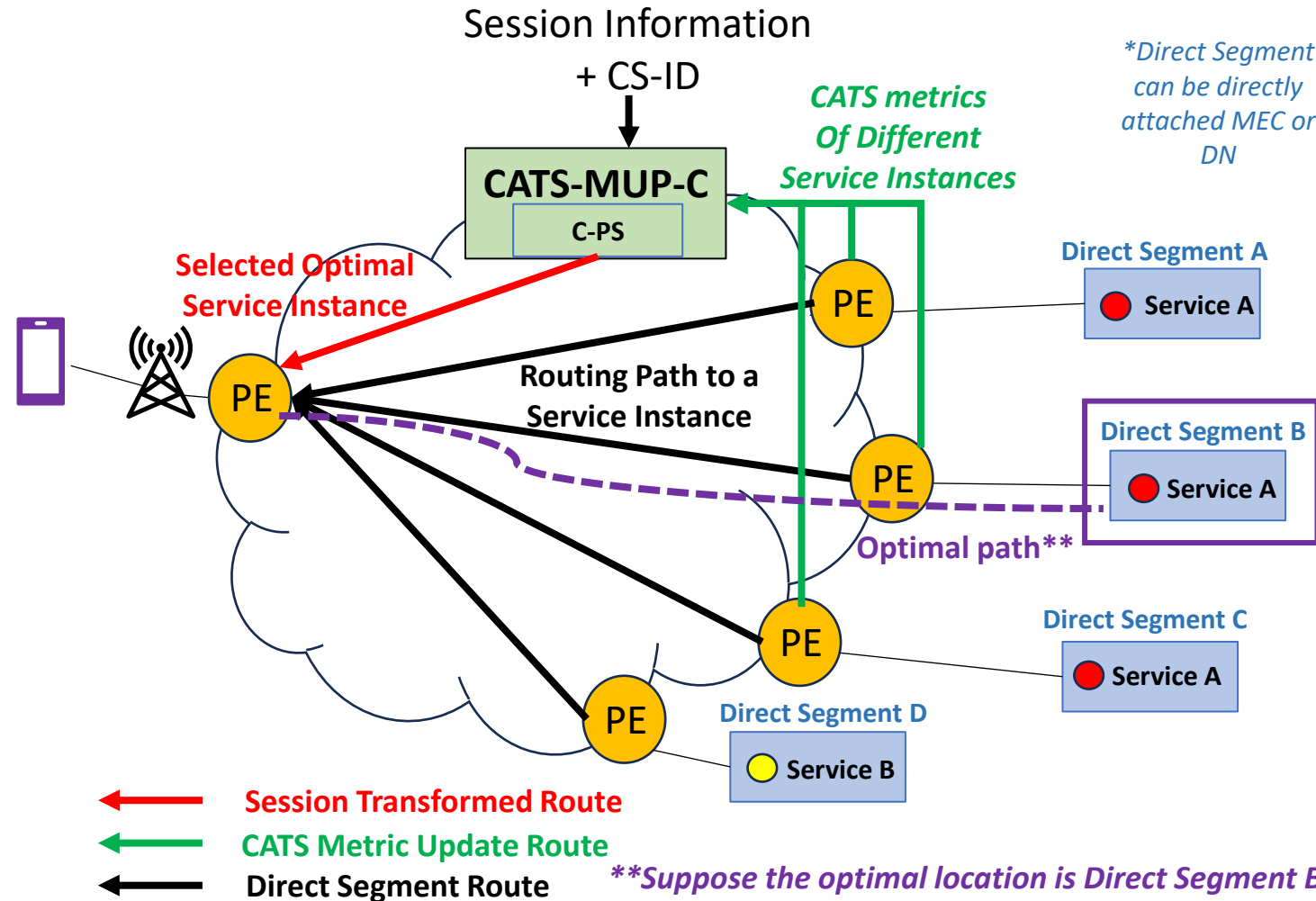
- **CS-ID:** CATS Service ID (Which service)
- **CIS-ID:** CATS Service Instance ID (Which service instance of a specific service CS-ID)
- **C-PS:** CATS Path Selector (Choose optimal service instance)



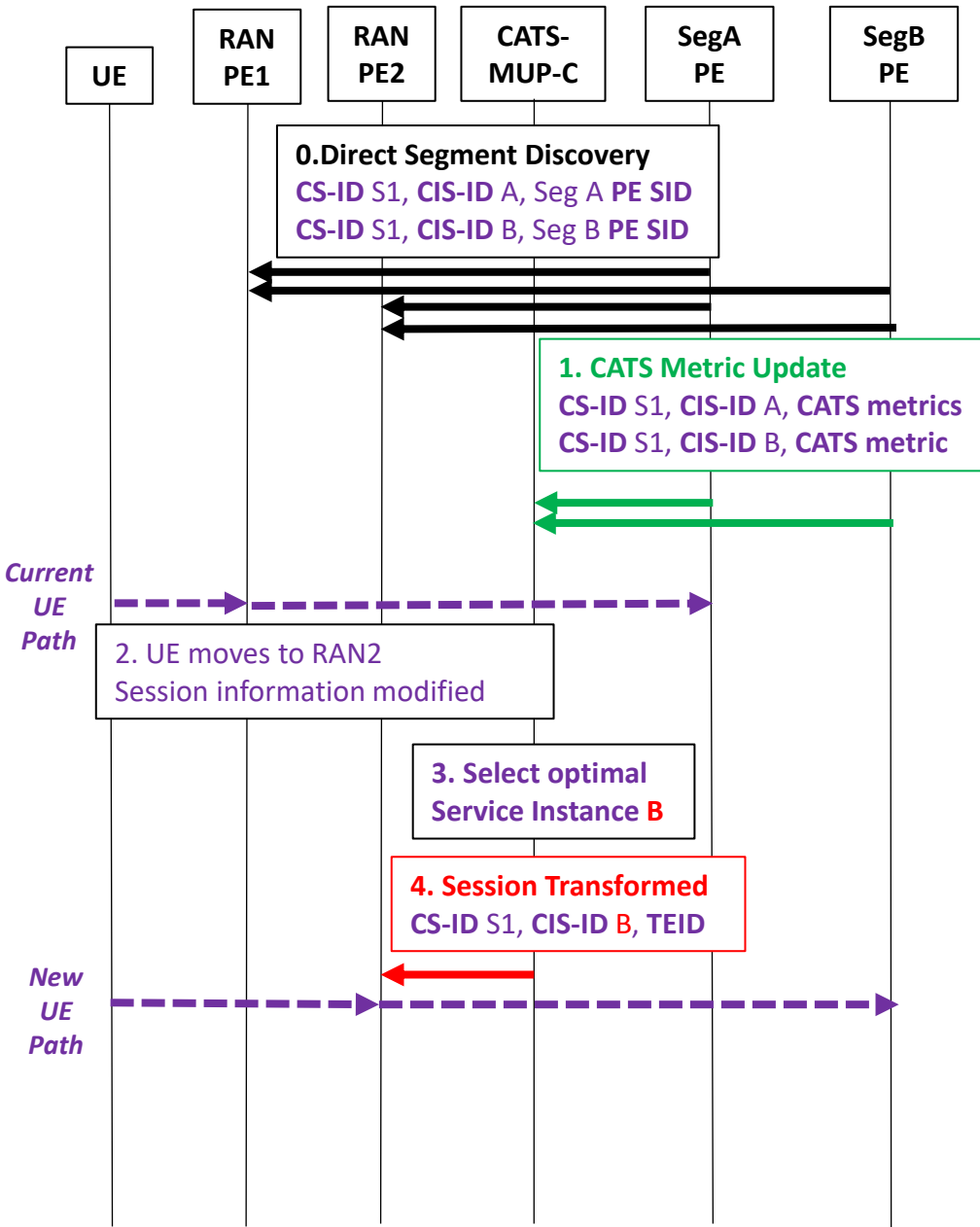
Centralized CATS-MUP - New UE request



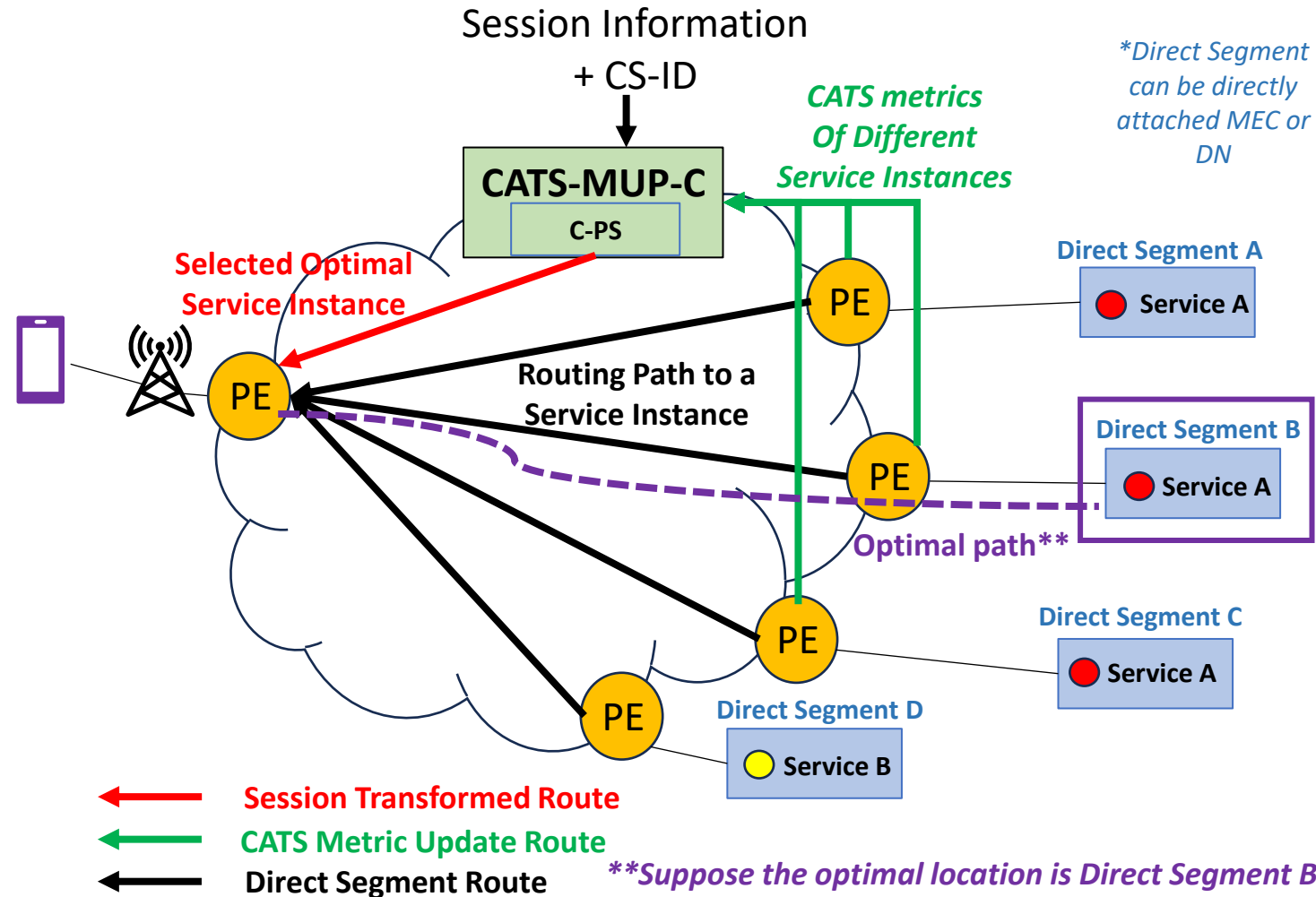
- **CS-ID:** CATS Service ID (Which service)
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- **C-PS:** CATS Path Selector (Choose optimal service instance)



Centralized CATS-MUP - UE mobility



- **CS-ID:** CATS Service ID (Which service)
- **CIS-ID:** CATS Service Instance ID (Which service instance of a specific service CS-ID)
- **C-PS:** CATS Path Selector (Choose optimal service instance)



How to integrate CATS into MUP?

- Centralized CATS-MUP
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- Distributed CATS-MUP
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Distributed CATS-MUP

- **1 Direct Segment = 1 Service Instance of a Service**
- Below are information should be included in the route NLRI

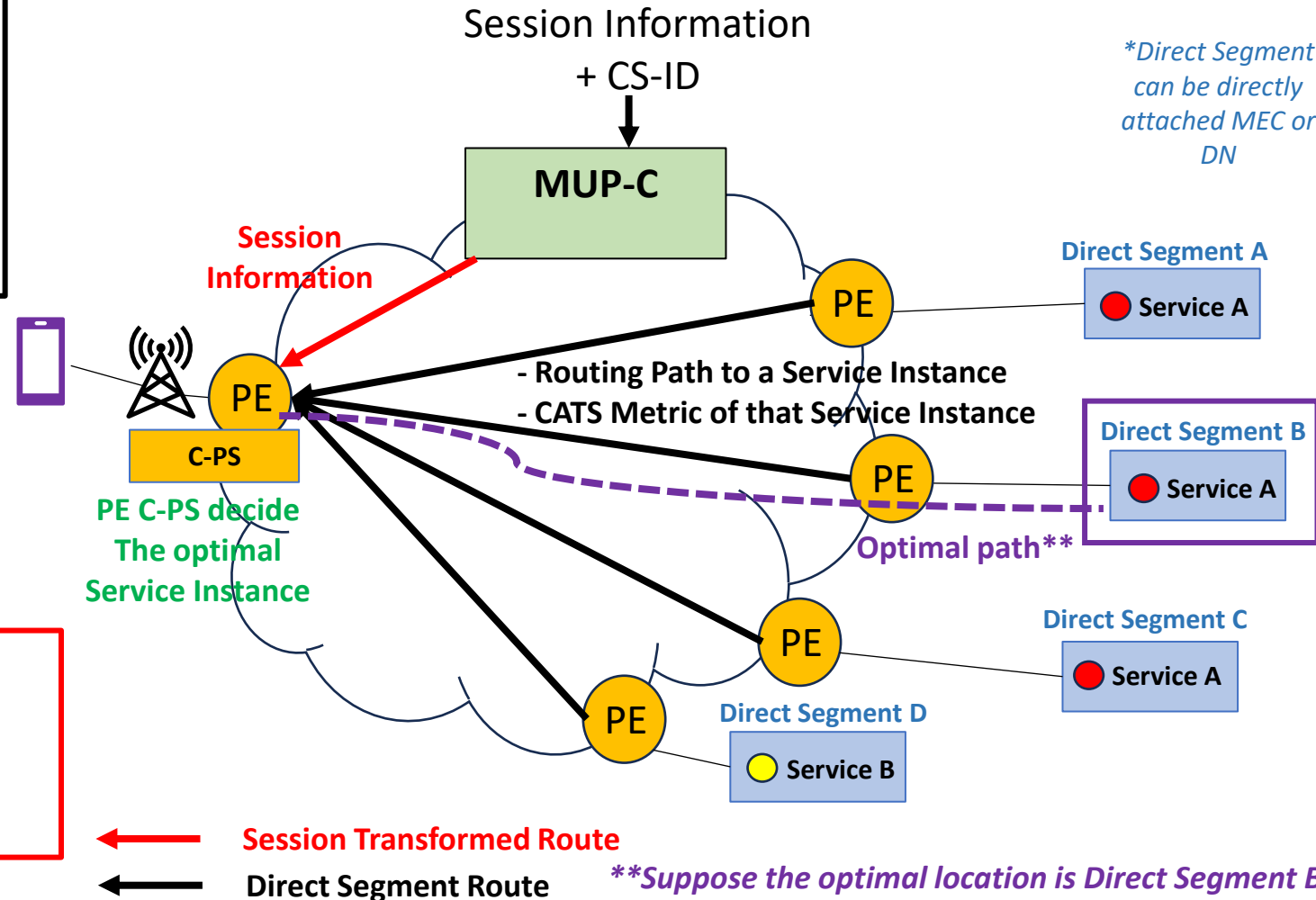
1. Direct Segment Route advertises Direct Segment reachability information and CATS metrics of it

- CIS-ID (can be used as Direct Segment ID)
- CS-ID
- CATS metrics
- Corresponding PE SRv6 SID

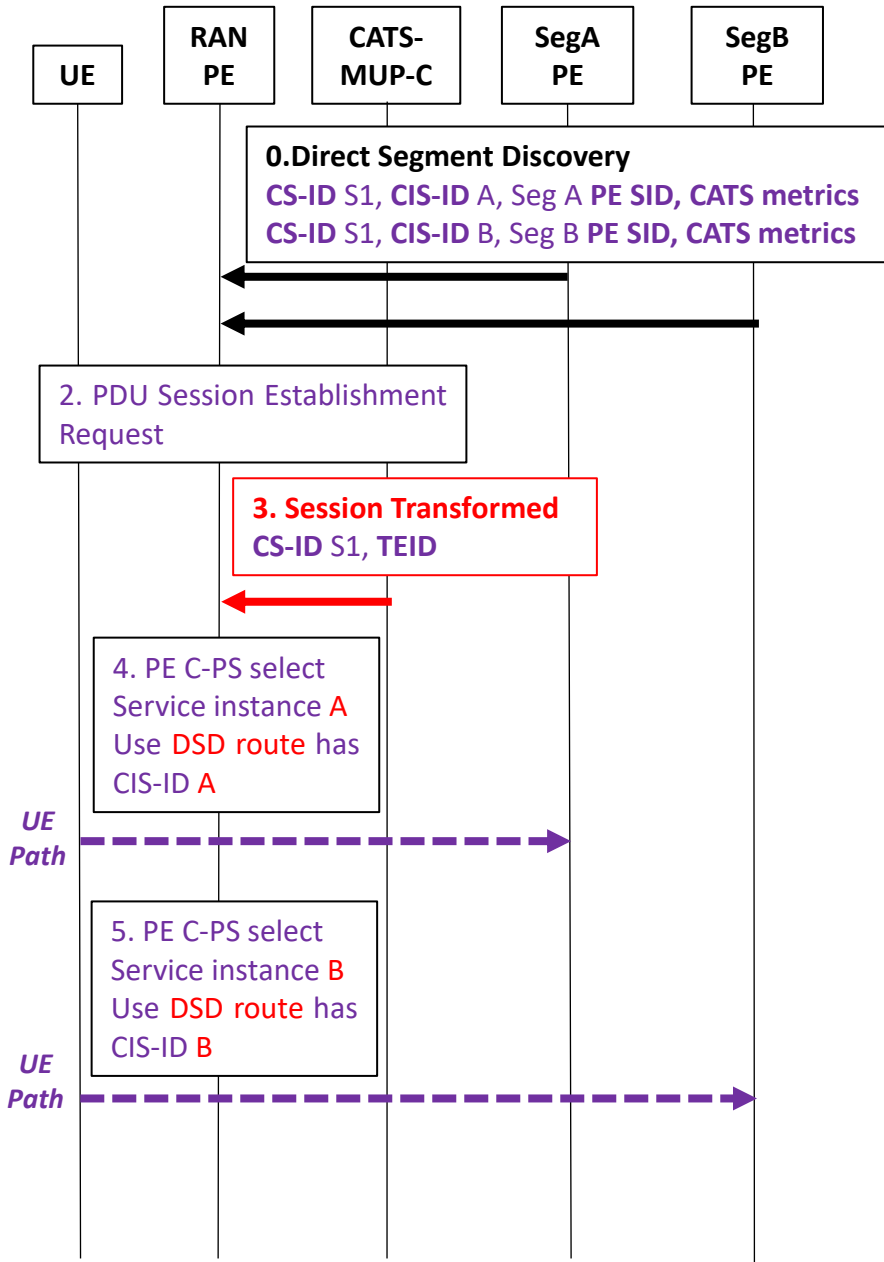
2. Session Transformed Route: map the session information to the requested service CS-ID

- CS-ID
- Session TEID

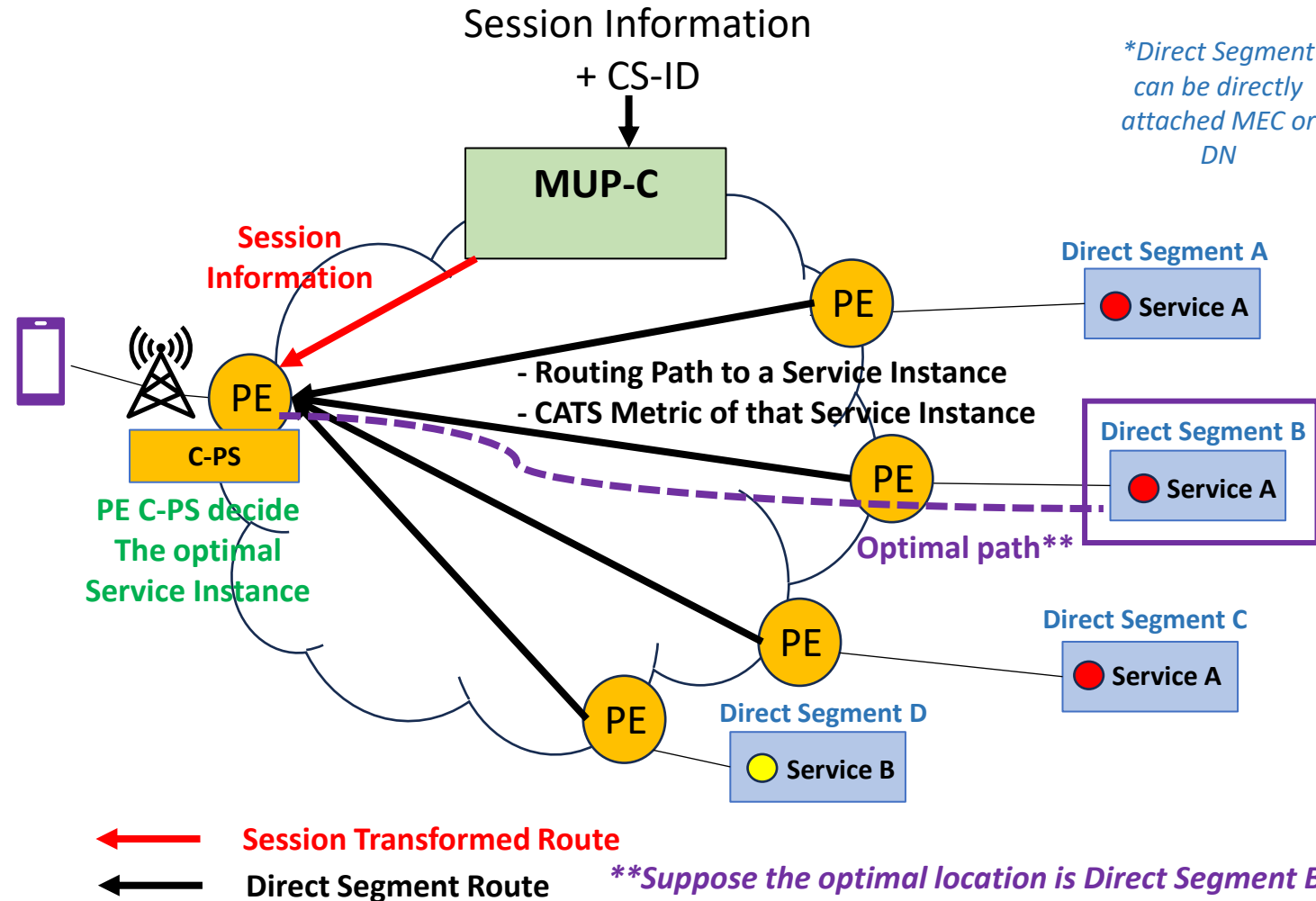
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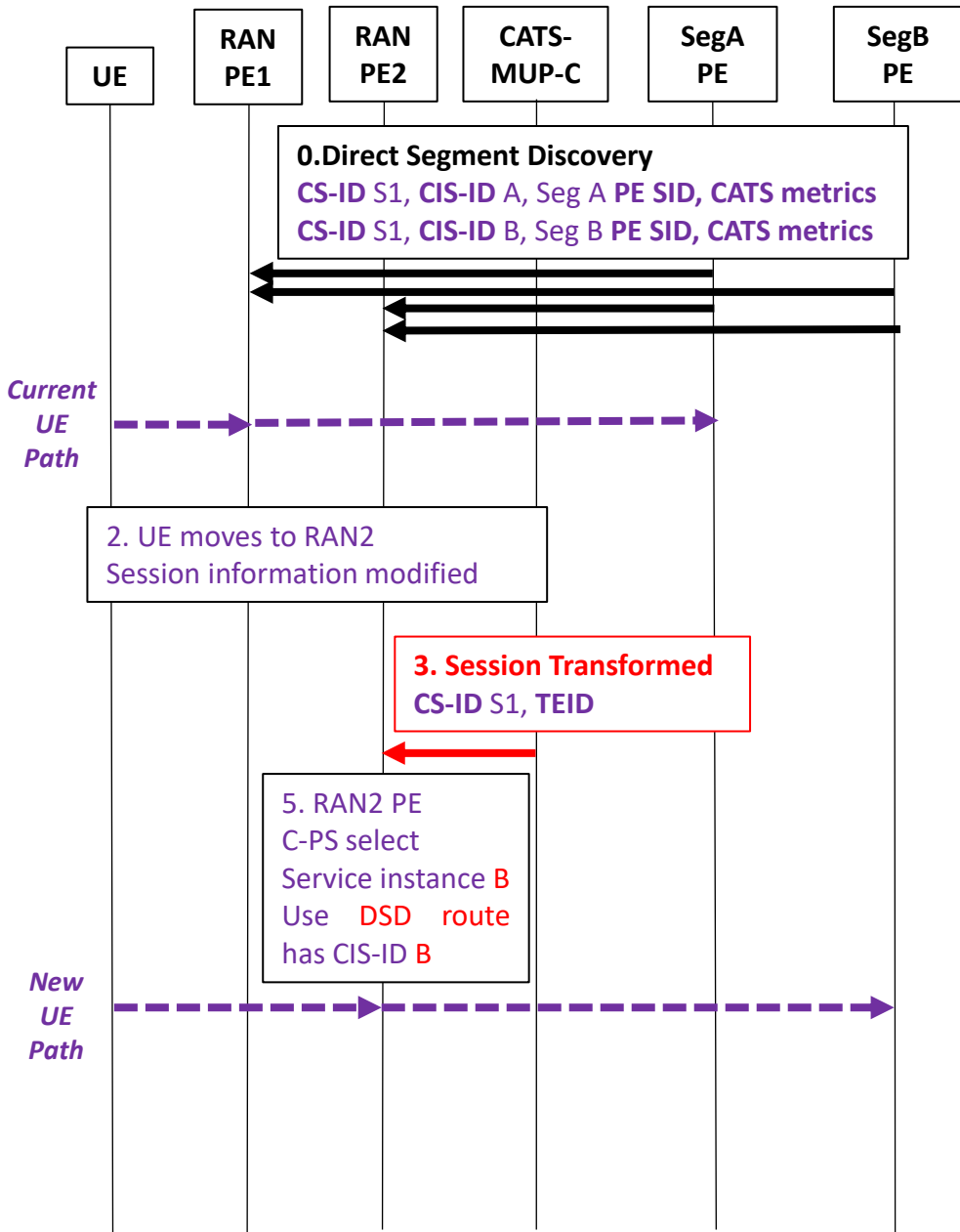
Distributed CATS-MUP - New UE request



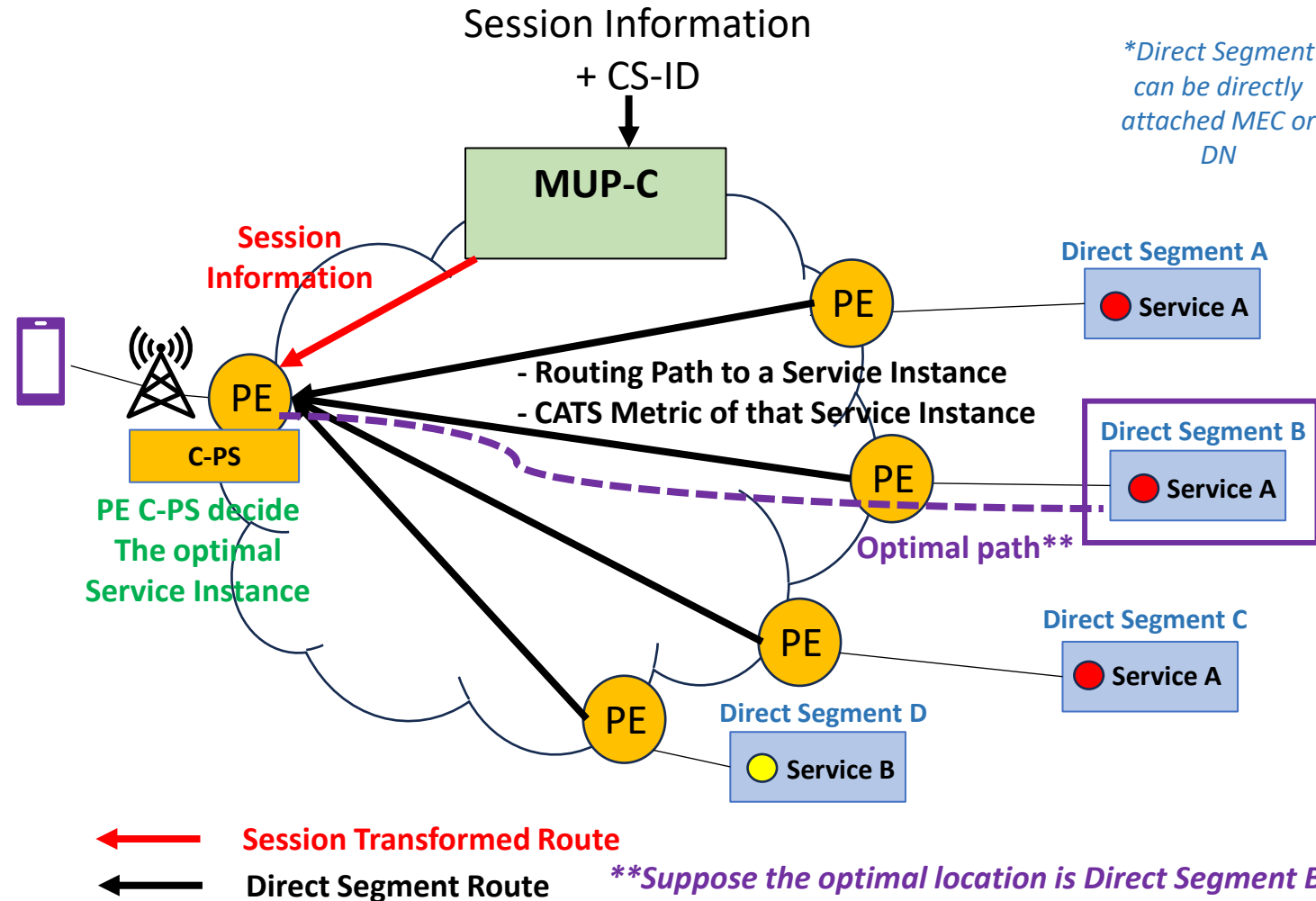
- **CS-ID:** CATS Service ID (Which service)
- **CIS-ID:** CATS Service Instance ID (Which service instance of a specific service CS-ID)
- **C-PS:** CATS Path Selector (Choose optimal service instance)



Distributed CATS-MUP - UE mobility



- **CS-ID:** CATS Service ID (Which service)
- **CIS-ID:** CATS Service Instance ID (Which service instance of a specific service CS-ID)
- **C-PS:** CATS Path Selector (Choose optimal service instance)



Summary

- Centralized and Distributed Deployment options
- Revise necessary NLRI Information in each CATS-MUP routes
- CATS-MUP routes expected behaviors in handling
 - New UE request
 - UE mobility
- We appreciate any comments
- Thank you!