PROCEL

Smart Traffic Handling for a Scalable Software Evolved Packet Core (EPC)

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An email refresh?

1. Service request message
2. Authentication
3. Initial context request
4. Initial context response
5. Modify bearer request
6. Update Bearer
7. Update Bearer response
8. Modify bearer response
9. Create Bearer request

Radio Access Network

Internet

Control plane

Data plane

Refresh

Mobility Manager

Subscriber Database

Serving Gateway

Packet Gateway

Control messages

Data messages
Who is bothered?

- Centralized data plane: Architecture inflexible for easy introduction of in-network services
- Core network elements have per-bearer state

Signaling is growing 2.5X data traffic: Scaling problem for operators

Centralized data plane: Increased data plane latency for users
In general, in LTE network, there is a mismatch between network resource consumption and the amount of data transported.
Resource allocation in the core network must be according to the requirements of the flow and the value of the flow to the user/operator.

Two simple principles
1. Classify flows
2. Allocate resources according to the classification
Procel - Vision

Procel Controller

Control path to core network

Radio Access Network

Backhaul

Procel

Datapath to core network

Offloaded to IP network

Operator service cloud

Control plane

Internet

Mobility Manager

Subscriber Database

Serving Gateway

Packet Gateway

Data plane

Control path to core network
PROCEL Research issues

• Flow classification techniques
• Granularity of Procel switch placement.
• Procel controller design
Thank you!