

Using PCP to Reveal a Host behind NAT

draft-boucadair-pcp-nat-reveal

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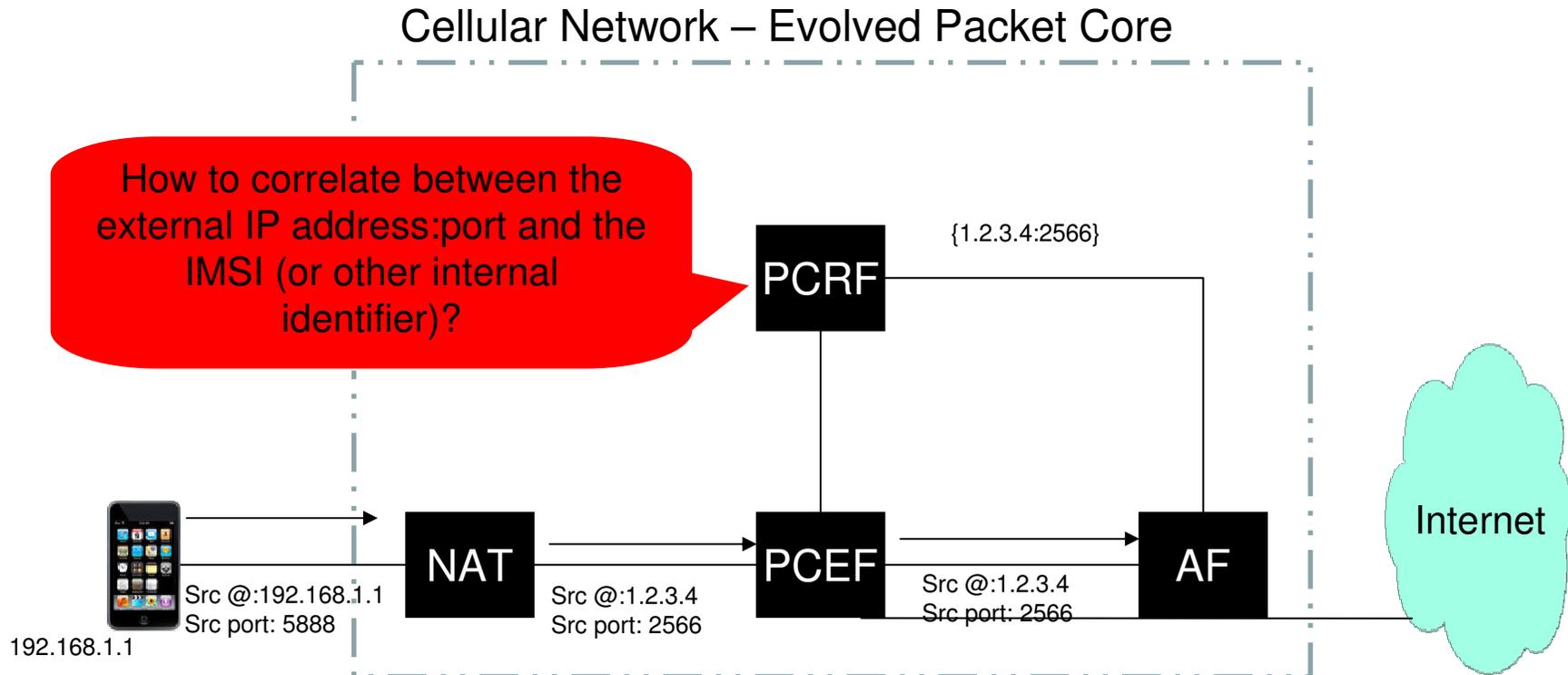
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Overall Context

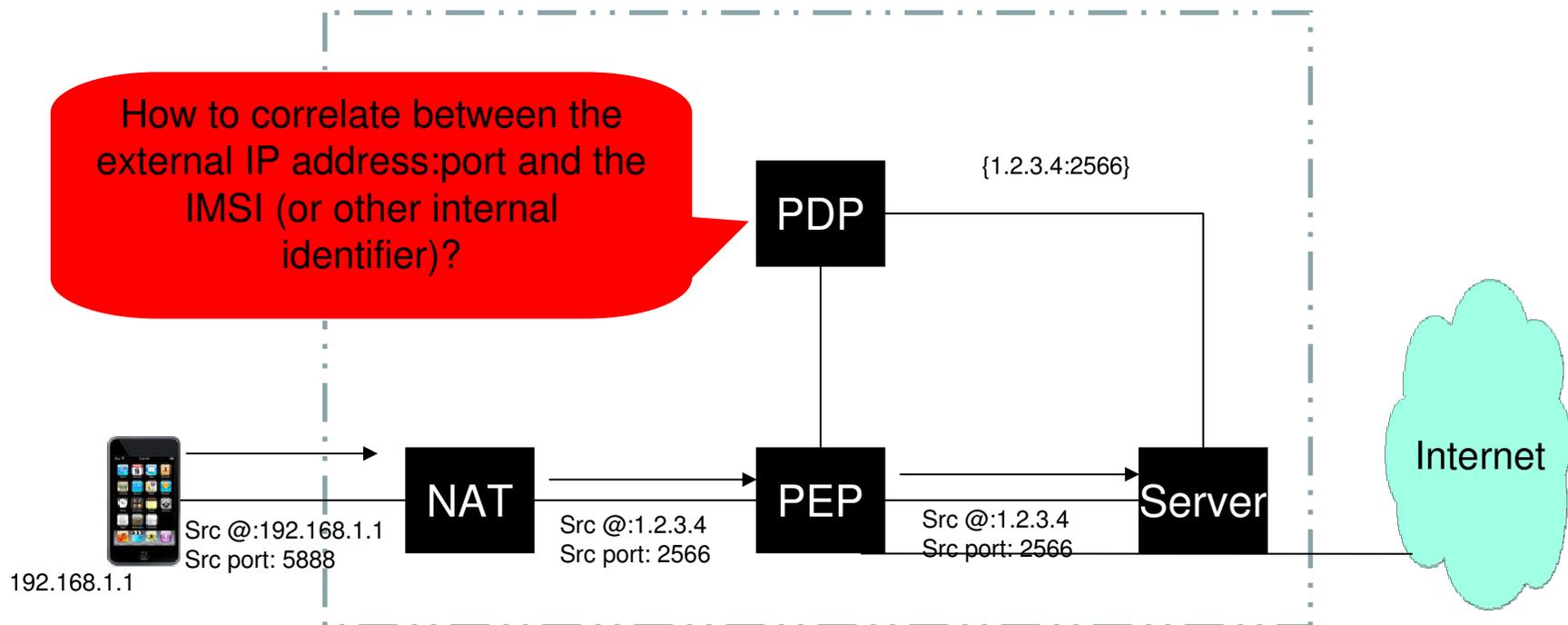
- RFC6269 identifies issues with address sharing
- An important concern is how to identify a host among those sharing the same address
 - Various use cases: e.g., PCC architecture
- This document focuses on concrete use cases which are seen as issues to be solved in current deployments

Problem



- AF is some server in the mobile network (or could be a third party server trusted by the mobile network)
 - e.g., HTTP streaming server.
- How the PCRF can enforce the required QoS policies on the PCEF?
- Subscriber-based charging will fail
 - E.g., UE has a quota on the amount of video to watch after which subscriber is billed differently, UE billed based on number of bytes exchanged etc.

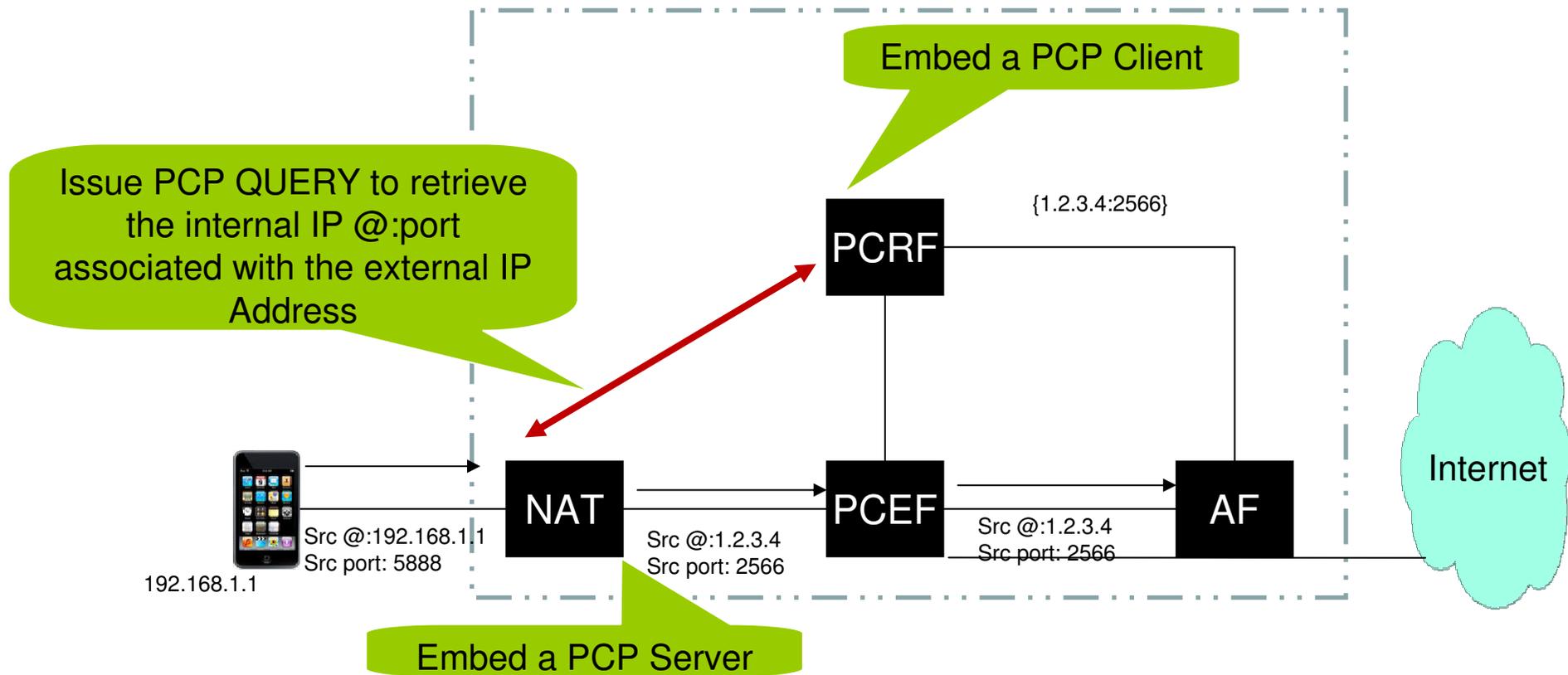
The Problem can be Generalized



- This problem is valid for any policy-based architecture [[RFC2753](#)]
 - PDP (Policy Decision Point)
 - PEP (Policy Enforcement Point)

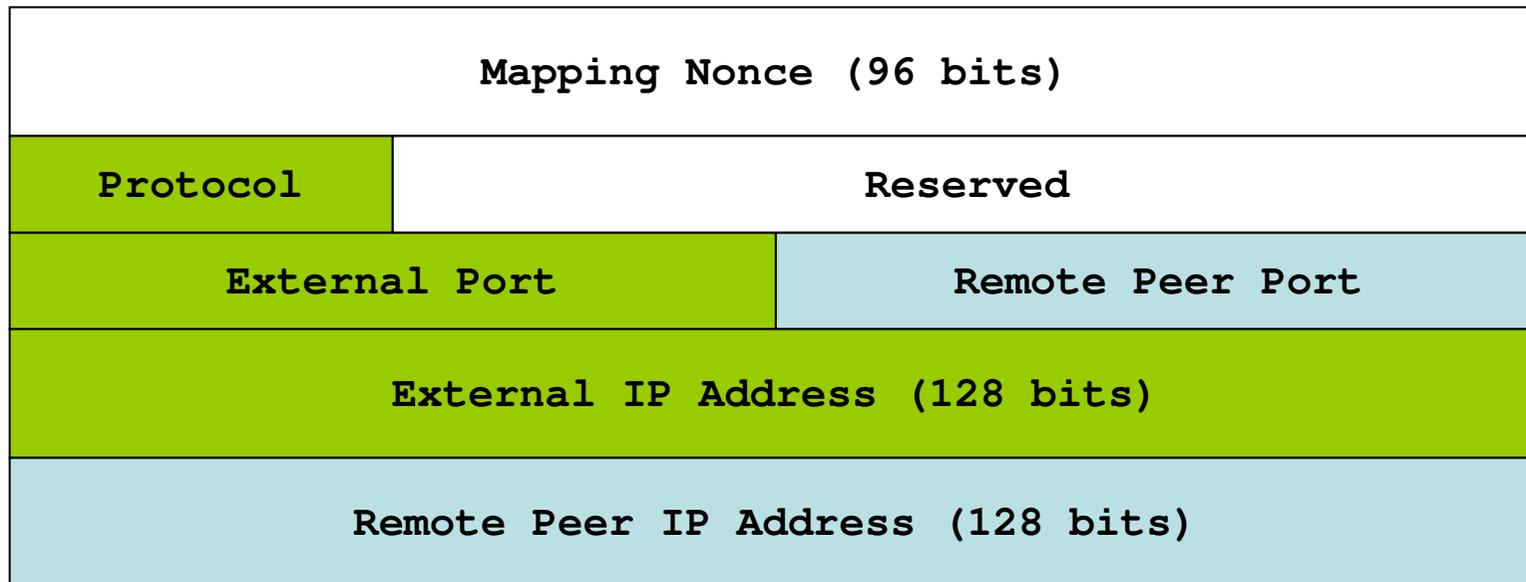
Solution

Cellular Network – Evolved Packet Core



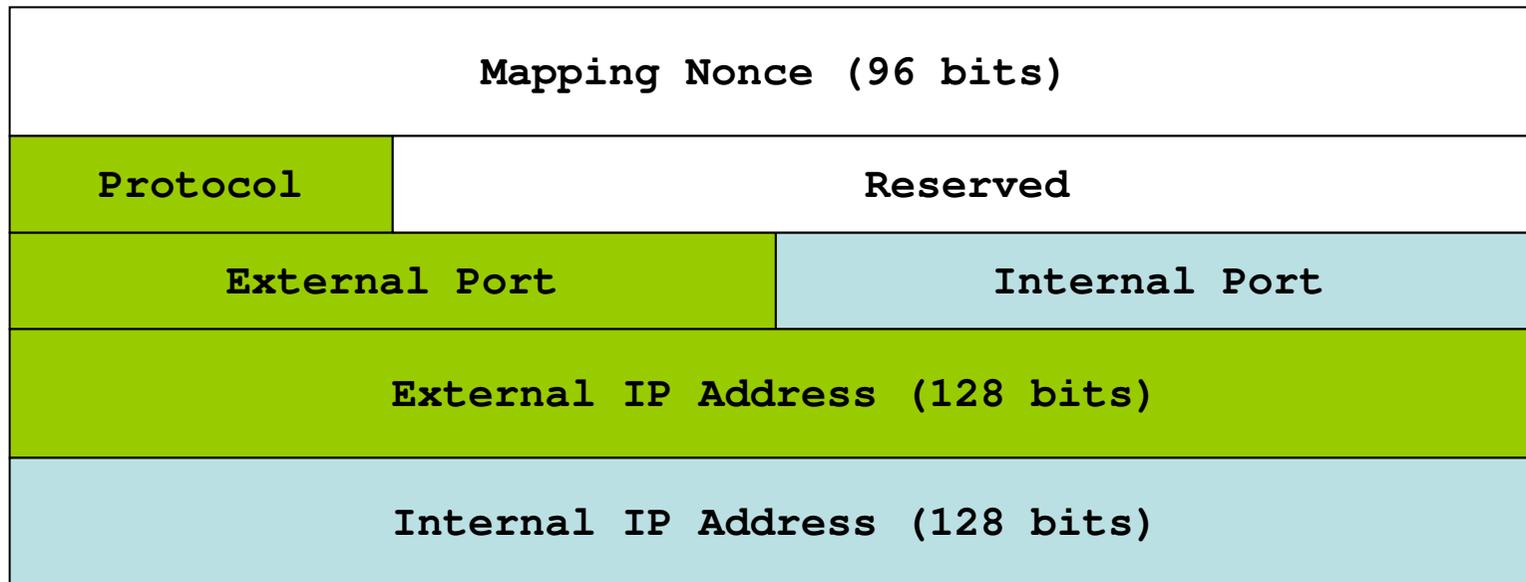
- With this proposed technique, PCRF can create required bearers/setup QoS on PCEF so that the flow is prioritized accordingly based on the profile of UE with required bitrate
- Policy Charging and Control (PCC) can identify the subscriber for accounting.

Query OpCode: Request



- PCP QUERY request is used by an authorized third party PCP client that is only aware of the 5-tuple **{External IP address and Port, Protocol, Remote Peer IP address and Port}** and needs to learn the Internal IP address and Port associated with the NAT mapping

Query OpCode: Response



- If Protocol, External Port and External IP address match an existing implicit dynamic mapping, then the PCP server builds a QUERY response with the Internal IP address, Internal Port and the lifetime associated with the mapping

Clarifications

- The proposed solution assumes ***the PCP Client and the PCP Server are under the same administrative entity***
- The proposed solution does not change the PCP machinery; in particular it ***does not require to serve PCP requests on the Internet-facing interface***
- The proposed solution ***does not modify PCP state***

Conclusions

- This is a missing piece of work
- There is a real need for this extension (3GPP PCC Architecture)
- The proposed solution is simple
- Consider WG adoption?