

(54) DYNAMIC LOAD BALANCING FOR MULTI-CORE COMPUTING ENVIRONMENTS

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(57) ABSTRACT

Methods, apparatus, systems, and articles of manufacture are disclosed for dynamic load balancing for multi-core computing environments. An example apparatus includes a first and a plurality of second cores of a processor, and circuitry in a die of the processor separate from the first and the second cores, the circuitry to enqueue identifiers in one or more queues in the circuitry associated with respective ones of data packets of a packet flow, allocate one or more of the second cores to dequeue first ones of the identifiers in response to a throughput parameter of the first core not satisfying a throughput threshold to cause the one or more of the second cores to execute one or more operations on first ones of the data packets, and provide the first ones to one or more data consumers to distribute the first data packets.

The diagram illustrates a network architecture 100, divided into four main sections: 5G DEVICE ENVIRONMENT, EDGE NETWORK, CORE NETWORK, and CLOUD NETWORK.

- 5G DEVICE ENVIRONMENT (102):** Contains various user equipment (UE) including a car (110), a drone (112), a smartphone (108), and other devices (116, 114).
- EDGE NETWORK (104):** Features Radio Resource Units (RRUs) (118, 120) connected to Distributed Units (DUs) (122, 120). These are connected to Central Units (CUs) (124, 126), specifically CU-CP and CU-UP.
- CORE NETWORK (106):** Includes a BSS/OSS (128), 5GC (128), and IMS (128). It also features a VIRTUALIZATION LAYER and a HARDWARE LAYER (126).
- CLOUD NETWORK (107):** Represented by a cloud icon containing server racks (130, 132).

Three paths are indicated at the bottom:

- PATH #1: DEVICE-TO-EDGE (134):** A dashed line with an arrow pointing from the 5G DEVICE ENVIRONMENT to the EDGE NETWORK.
- PATH #2: EDGE-TO-CORE (136):** A dashed line with an arrow pointing from the EDGE NETWORK to the CORE NETWORK.
- PATH #3: DEVICE-TO-EDGE-TO-CORE (138):** A dashed line with an arrow pointing from the 5G DEVICE ENVIRONMENT through the EDGE NETWORK to the CORE NETWORK.