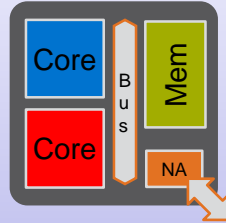


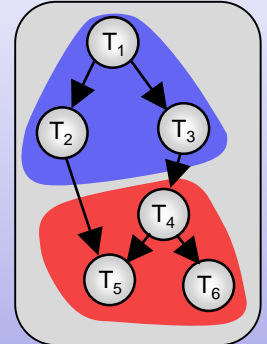
Architectures

- MPSoC platforms
- Hardware accelerators
- 2D/3D NoC interconnect
- Memory hierarchies



Methods

- Cross-layer resilience
- Bio-inspired self-organization
- Power management
- Diagnosis on Chip
- Interconnect Virtualization



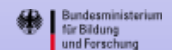
Application Areas

- **Networking**
- Automotive
- Visual Computing
- Streaming
Big Data Processing

FPGA-based Prototyping

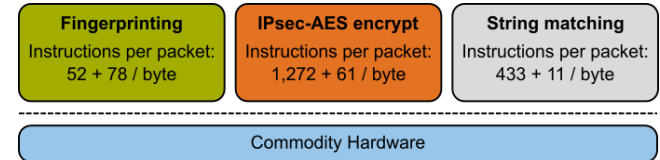
Network Processor Architectures

- **FlexPath NPU**
 - Offload CPUs with hardware accelerators
 - DFG SPP 1148 “Reconfigurable Computing Systems”
- **NPU100**
 - Folded pipeline for processing of 100 Gbps Carrier Grade Ethernet
 - EUREKA-CELTIC project 100 GET funded by BMBF



Dynamic Load Management for Virtualized Network Functions

Background: • Network function execution on commodity hardware, shared hardware resources



Problem:

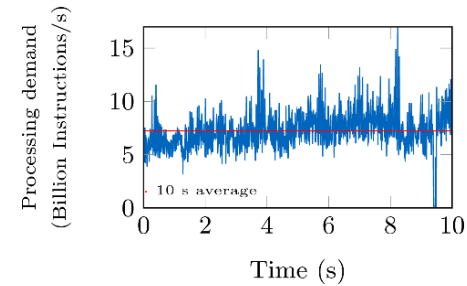
- Bursty traffic patterns
- Diverse processing demand among network functions



volatile processing demand



Capacity provisioning trade-off
utilization vs. quality-of-service



Approach: Dynamic Load Management

- Observation: Unlikely that peak workloads hit all nodes at the same time
- Idea: Let network nodes share their processing resources, in overload situations redirect packets to neighbor nodes

