Resource Elasticity for 5G Networks

Dimensions of Elasticity

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Elasticity KPIs

- **Minimum footprint**: Minimum resource set to provide any output
- **Reliability**: Percentage of time in which a VNF provides optimal operation
- **Graceful degradation**: Perceived degradation utility vs resource shortage
- **Rescueability**: Ability of overcoming an outage until new resources are available
- **Cost efficiency**: Increased number of slices to be hosted on the same infrastructure

Architectural Implications

- **Computational elasticity**: Graceful scaling of computational resources based on load
- **Orchestration-driven elasticity**: NF interdependencies
- **Slice-aware elasticity**: End-to-end (E2E) cross-slice optimisation

AI for Elastic Management & Orchestration

- **Elastic cloud-aware protocol stack**: Elastic cloud-aware protocol stack
- **Elastic NF design and scaling mechanisms**: Elastic NF design and scaling mechanisms
- **Elastic resource provisioning mechanisms exploiting multiplexing across slices**: Elastic resource provisioning mechanisms exploiting multiplexing across slices

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