AJIT: Accountable Just-in-Time Resource Allocation with Smart Contracts



Tooba Faisal

Damiano
Di Francesco Maesa





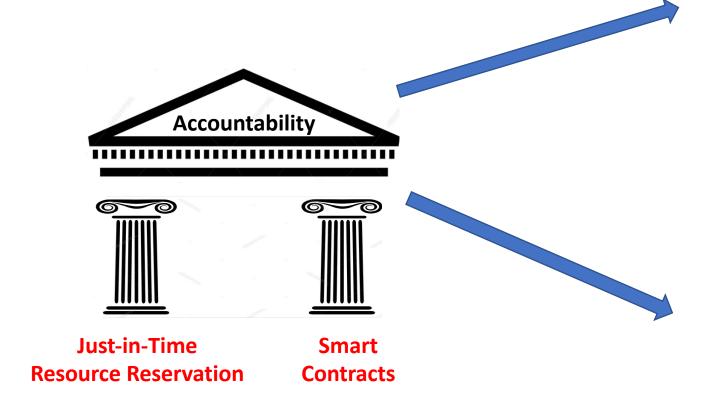




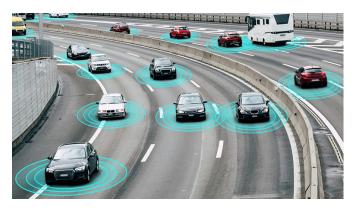
Simone Mangiante



Supporting mission-critical services



Resource allocation





SLA Accountability

Problems with current service contracts

Consumer: Service level guarantees are not always required.







Operators: Stringent SLAs are difficult to honor and may be unnecessary.

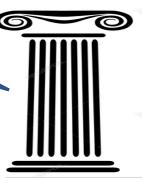
Our proposal

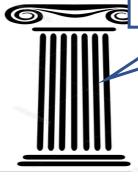
On-the-fly network slice creation, only when the resource available.



Permissioned Distributed Ledger

managed by consortium of operators





Just-in-Time Resource Reservation

Smart Contracts

Why Smart contracts?

Trustworthy service agreement Transparency record-keeping Automated payments and Self-execution settlement of SLA infringements No service agreement **Immutability** tampering possible

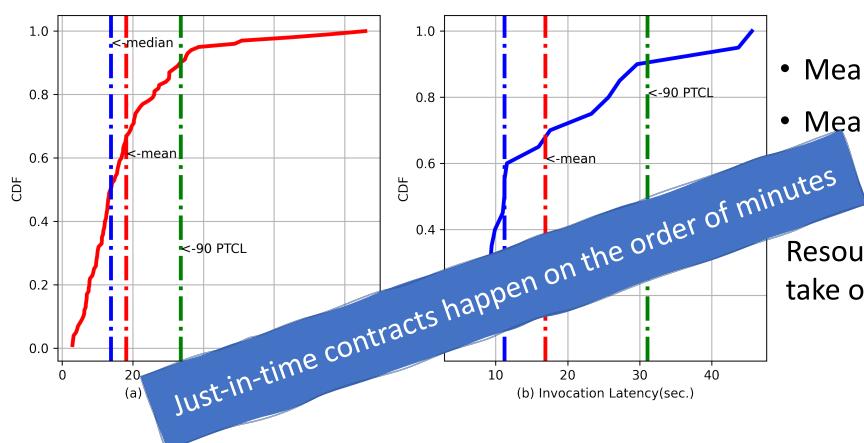
Network slicing for resource reservation

• Enables tailor-made services(i.e. one slice for one service type)

Dynamic resource reservation

• Better management may enable operators to manage congestion in the network and generate higher revenue (i.e. higher cost for busy times/paths)

Is Just-in-Time possible?



- Mean Deployment ~18s.
- Mean invocation ~16s.

Resource reservation may take order of minutes.

Conclusions





