



Future Service Oriented Networks

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What relevant problems to future networks will FUSION solve?

- Media applications are not stand-alone
- Cloud storage and applications are limited and unsuitable for dynamic, real-time, high-bandwidth applications
 - Granularity
 - Localisation
 - Configurability
- CDNs are fine for distributing static content efficiently
- ICN takes CDNs a stage further with fine grained caching
- Neither are suitable for deploying and accessing service processing capabilities



What makes FUSION's solution unique compared to alternative solutions?

- Positioning of service processing nodes at a very fine granularity
 - in access points close to the users;
 - collocated with routers within an ISP's network;
 - in local data-centres owned and operated by ISPs;
 - in traditional data-centres and service farms operated by cloud and service providers.
- Infrastructure and tools for services to be flexibly deployed over this distributed service-execution platform to **optimise** the location of individual service component instances
- Native service-oriented routing based on anycast
 - Inherent support for load-balancing and elasticity
- A ***fusion*** of service deployment and execution technologies with native service-centric routing capabilities throughout the network to provide a service-oriented network ecosystem



What are the business and industrial opportunities for FUSION's solution?

- New services:
 - Highly demanding networked applications (gaming, personalised video, public safety...) to be deployed in a scalable and cost-efficient manner
- Improved performance, reduced cost, improving flexibility and efficiency
- Reduce barrier of entry to application and service providers
- Increased involvement of ISPs in application provisioning, recouping revenue lost to OTT service providers



What are the key performance indicators set to measure FUSION's success?

- **Reduce the start-up time** for remotely executed service component instances to within the order of seconds compared to today's equivalent operation of instantiating a virtual machine in 10s to 100s of seconds.
- **Reduce total network traffic footprint** (bits/s x number of network links traversed) by 50% for applications remotely processing large bandwidth streams by optimising the placement of service processing nodes.
- **Reduce the network component of application latency** by 50% for remotely processed services such as personalised video and networked games by optimising the placement of service processing nodes.
- The service resolution, selection and routing mechanisms should **select service instances within no more than 200% of the optimal** according to a combined metric that includes parameters such as RTT, throughput and service load.
- **Routing information** between service-centric routers will **not exceed 5%** of the capacity of the interconnecting links.



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