5G: Orchestrating the Orchestra

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Public showcase locations

• Three Locations:
  • Millennium Square in Bristol
  • Digital Catapult London (King’s Cross)
  • King’s College London (Strand)

• 2 music songs performed by distributed orchestra:
  • Piano & 2 violins
    • Violinist in Bristol and Digital Catapult
    • Pianist at King’s College London
  • Piano, violin & vocals
    • Violinist in Bristol
    • Pianist at King’s College London
    • Vocalist at Digital Catapult
Testbed Setup

- Multiple Domains/Islands (three physical locations across Bristol and London)
  - Each running its own OSM (Rel 3 supported as of now)
  - Islands L2 interconnection through Jisc’s JANET network (UK NREN)
- 5GUK Exchange allows users to dynamically create and deploy inter-domain Network Services
  - Compose inter-island services combining exposed island services
  - Cross-domain orchestration and coordination
  - Dynamic inter-networking on the interconnection infrastructure
  - Developed on top of OSM APIs
- OSM works across multiple federated islands
Network Service Graphs

- Soundjack1 software for high-quality audio conferencing deployed as VNF in a separate subnet using a vRouter in KCL, London (NS1).
- Each Soundjack client (audio s/w) connect to Soundjack webserver hosted at KCL (NS1).
- Soundjack client and video devices at each location get DHCP lease from VNF hosted in DigiCat, London (NS2).
- NSes deployed by islands’ OSMs, service brokering to islands through 5GUKEx
- Dynamic SDN networking on each island
- Dynamic inter-island networking by SDN controller within the 5GUKEx
  - Similar to WIM concept from OSM Rel 5
- VLANs to create L2 slices with a VNF router hosted at KCL for Internet access.
  - All VNFs are routed through vRouter at KCL to access their internal webserver.

1: www.soundjack.eu
Future Work

• Support for OSM Rel 5
  • API migration to SOL005.

• OSM Slicing manager based use cases over multiple domains.

• OSM monitoring integration and analysis over multiple OSM domains.