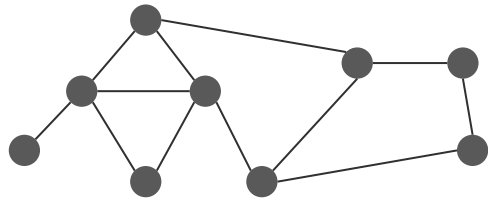# ORCHESTRATION AND CONTROL CHALLENGES IN NGSO NETWORKS

ASHESH MISHRA | ashesh@aalyria.com

STATIC NETWORK / DYNAMIC SERVICES

1. CREATE NETWORK GRAPH
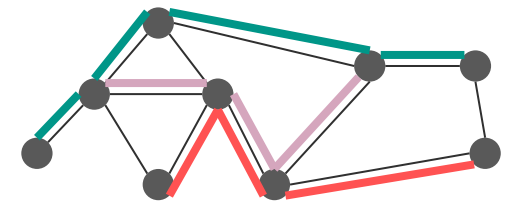
2. SERVICE REQUESTS
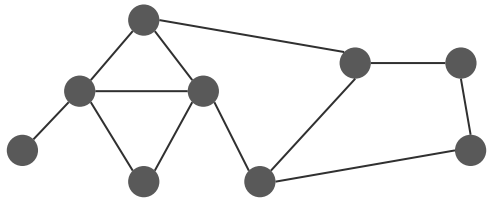
SVC1
<SLA>

SVC2
<SLA>

SVC3
<SLA>
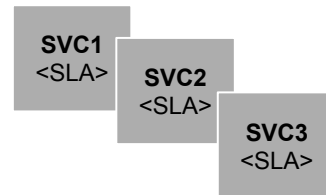
3. SOLVE GRAPH FOR SERVICES

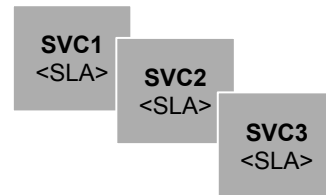# CHALLENGES IN TIME-/SPACE-DYNAMIC NETWORKS
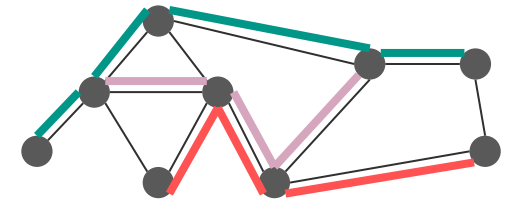

1. CREATE NETWORK GRAPH

Availability and location of nodes changes with time;

Availability and capacity of links/edges changes with time, environment, regulations, etc.

2. SERVICE REQUESTS

SVC1
<SLA>

SVC2
<SLA>

SVC3
<SLA>

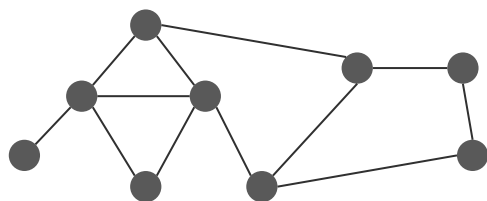**3. SOLVE GRAPH FOR SERVICES**

NATURE OF NGSO NETWORKS

Time-Dynamic: Varying availability based on time-of-day (especially in EO/SAR)

Space-Dynamic: Relative motion and link-performance every millisecond
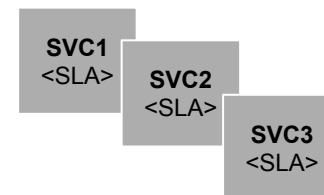
Dynamic-Intent: Varying needs and M2M interface interactions (for instance, disaster response)
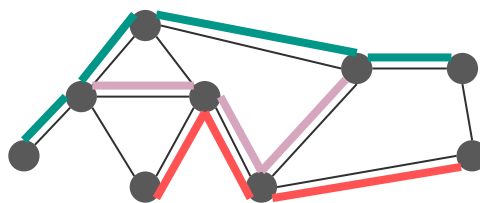
TEMPOROSPATIAL SDN

1.a. RECREATE GRAPH

1.b. SERVICE REQUESTS

SVC1 <SLA>

SVC2 <SLA>

SVC3 <SLA>

2. SOLVE GRAPH FOR SERVICES

SPACETIME

A temporospatial SDN platform for all-domain mesh orchestration

Emulate | Start by modeling your current or planned network on a private, hosted and managed instance of Spacetime. Emulate your current or next-generation network and showcase Spactime's ability to optimize your business or mission outcomes.

Optimize | Add real hardware to the Spacetime environment as prototypes and final systems become available to incrementally grow into a production-ready instance.

Orchestrate | Orchestrate your network with Spacetime hosted on your preferred infrastructure provider and classification level, and provides 24x7x365 carrier-grade support to keep your network operational at the highest level of reliability. Continue to future proof your network with continuous feature updates.

Coordinate | When you're ready, to coordinate resource sharing and interconnections with partners and allied networks – on your terms.

AALYRIA

https://aalyria.com/spacetime/

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