

# Application of Generative Policy to SDS



John Ingham (Dstl), Chris Williams (Dstl), Graham White (IBM UK), Alan Pilgrim (BAE Systems), Elisa Bertino (Perdue University), Dinesh Verma (IBM TJ Watson Research Ctr.)

## Scenario

### A Software Defined Slice (SDS) tasked with tracking a Person of Interest (POI)

- UK forces working with a local security force to find and track a high value target
- The area of operations in this scenario is an urban environment with possible constraints
- There is a heavy reliance on local infrastructure providing collection assets as well as UK/US ISR assets (UAVs)

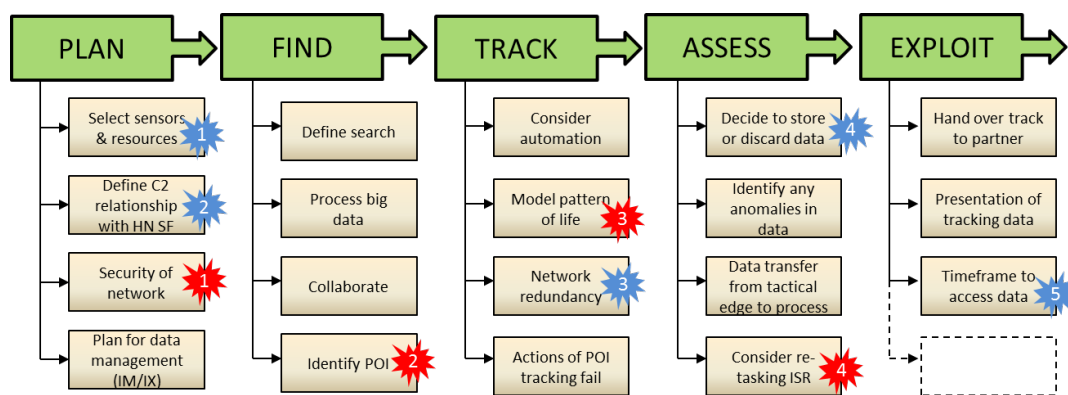


Figure 1: Diagram showing the movement through the phases of the scenario

## Lifecycle of the SDS

### Initialisation Phase

- During initialisation, in order to derive the task to be completed the SDS will combine information from:
  - Task requirements
  - Task metrics
  - Overarching global policy from a central repository
- Generative Policy can be exploited in situations where there is some distributed source of global policy rather than a single central repository.

### Resource Allocation and Negotiation phase

- Once the slice has received the task requirements suitable resources will have to be identified and requested.

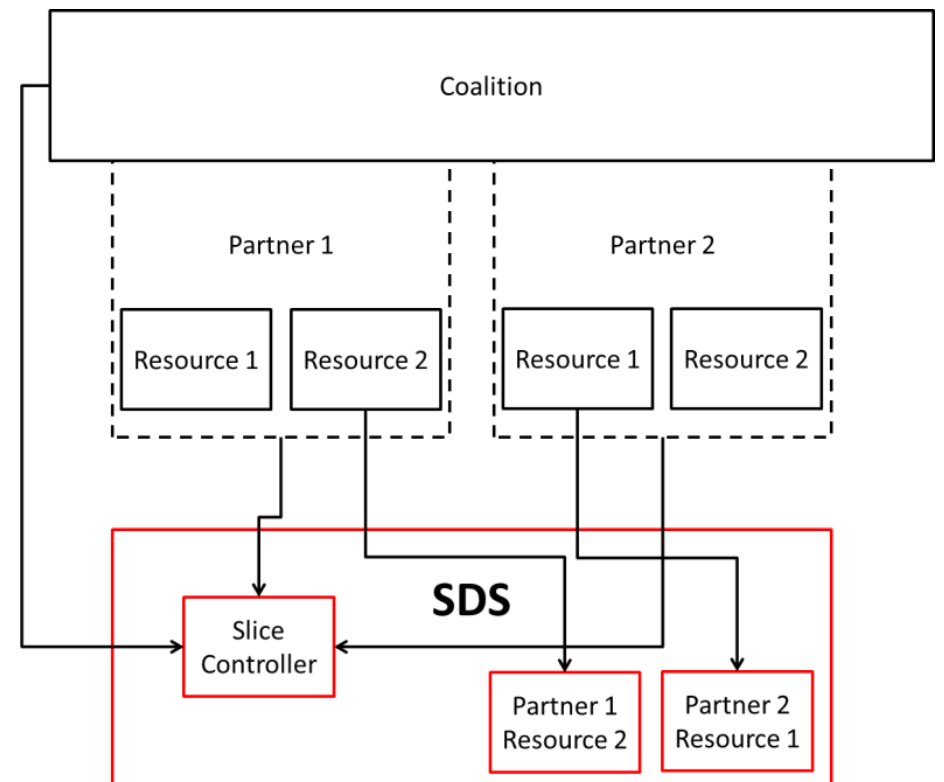


Figure 2: Resources being pulled from multiple partners in the coalition.

- Some of the tasks the controller will be responsible for include:
  - Resource negotiation
  - Managing risk and trust issues
  - Ensuring fairness in requesting resources
- Generative policy can be utilized here to examine the previous history of allocation

### Resource Management phase

- The slice controller will be managing resources through policies and monitoring progress towards completing the mission
- Successfully managing resources involves keeping them operationally effective

### SDS Closedown phase

- Policy must set out the management of releasing the resources once the task is completed
- Policy will also determine what needs to be done with the data gathered throughout the mission