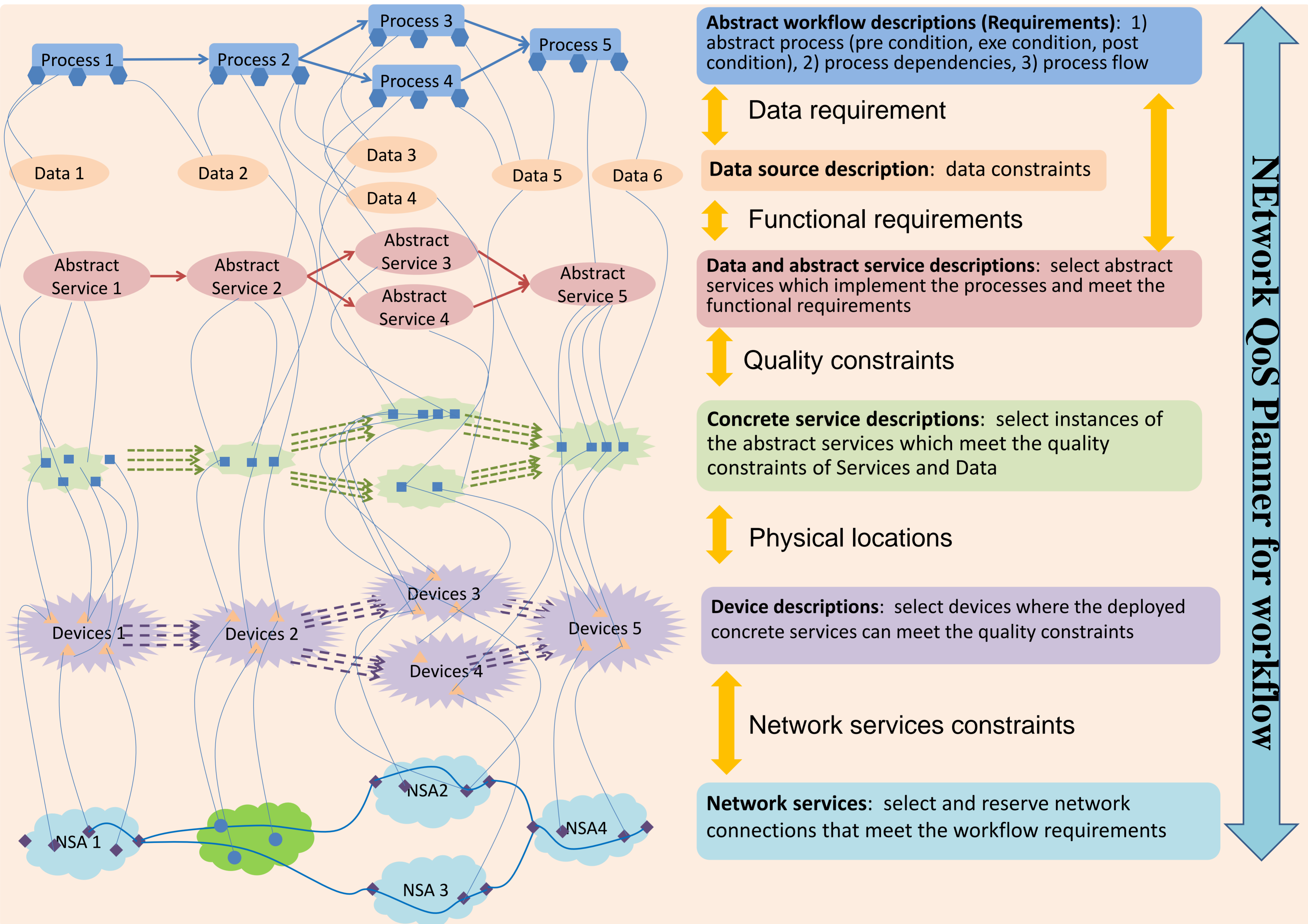


Planning data intensive workflows on inter-domain resources using the Network Service Interface (NSI)

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Background

Using Network Service Interface (NSI) to advance the network resource selection / reservation / provisioning in scientific workflow scheduling and execution.



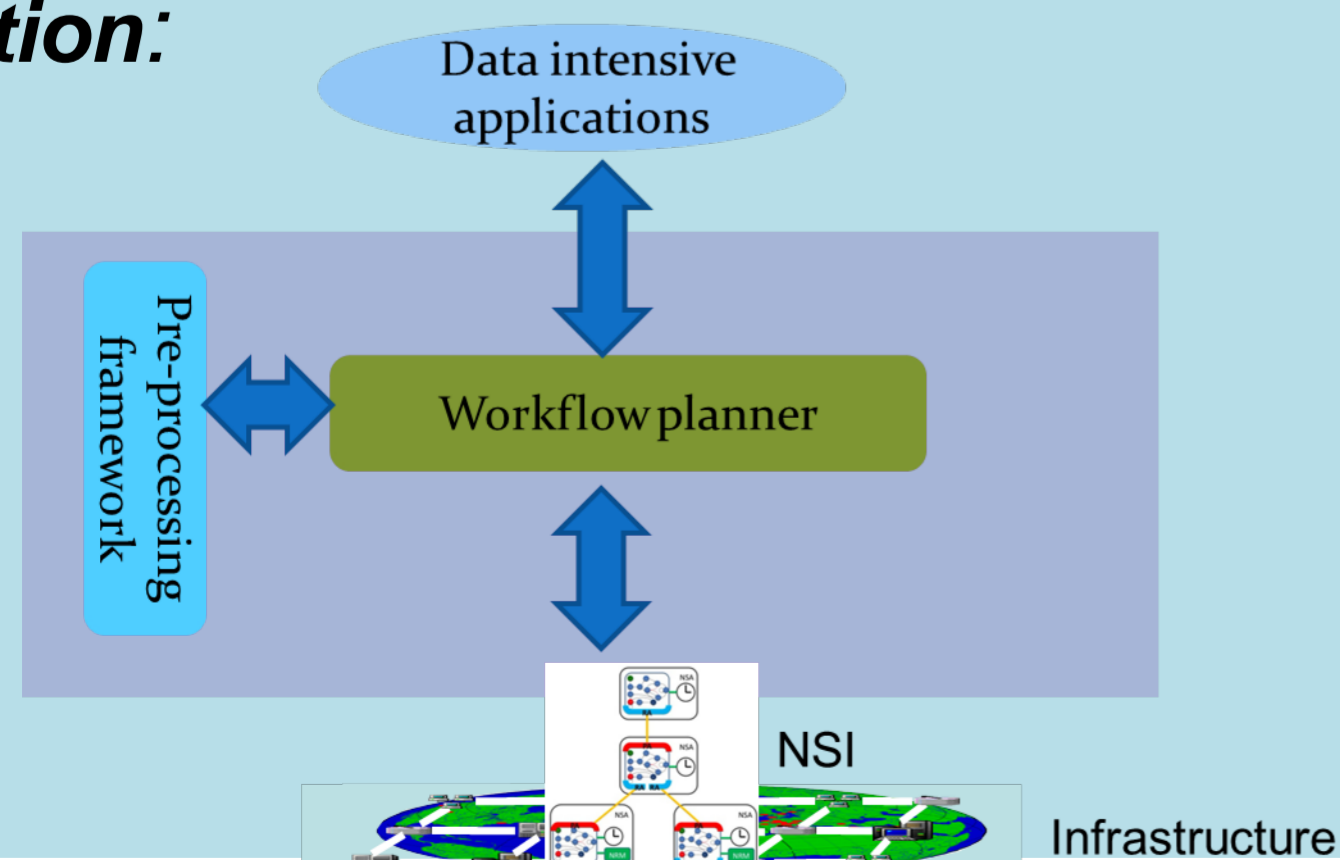
Scenarios:

The planner is able to search services to instantiate a given abstract workflow, select resources and reserve network connections to plan the execution of the workflow.

Challenges:

1. Select optimal resources based on workflow constraints.
2. Map services onto the STPs of NSA.
3. Reserve connection between NSA and non-NSA.

Solution:



System prototype:

1. The abstract workflow QoS description language is developed.
2. The services are described using CineGrid Description Language (CDL), network topology and connectivity is described using Network Description Language (NDL), the Network Service Interface (NSI) uses Dtox as its internal description schema. Those schemas are evolving to a new language called Infrastructure and Network Description Language (INDL).
3. The Planner is prototyped using multi agent technology. The reasoning kernel is developed using Prolog, and different interfaces are provided for clients.

