

SC22 INDIS Panel

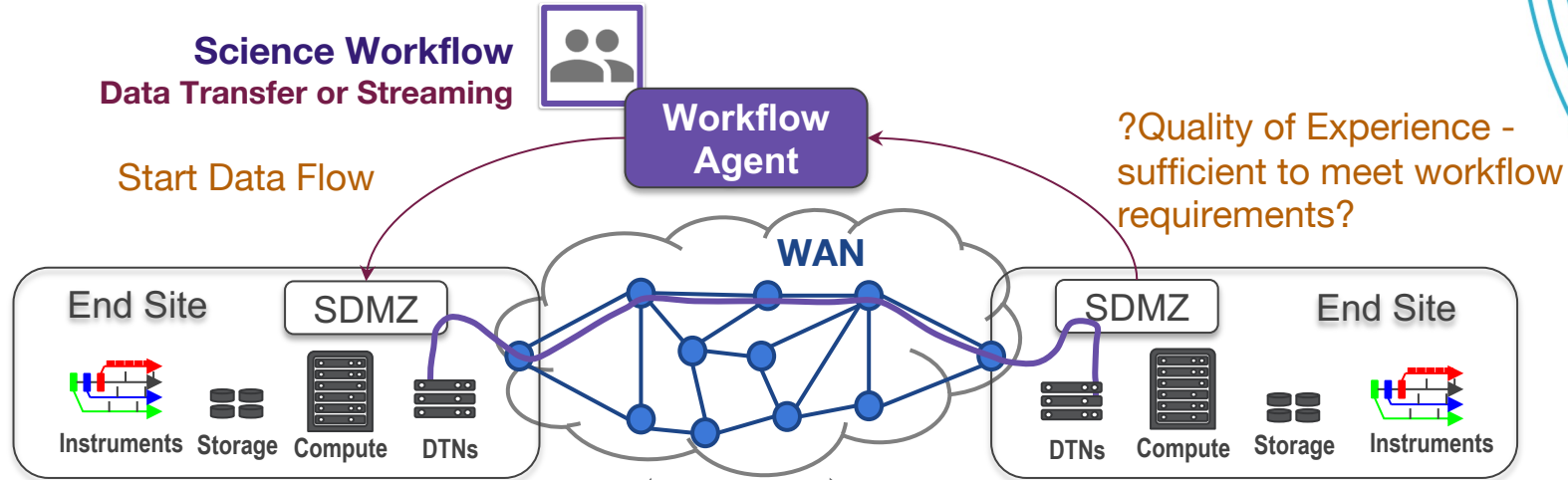
Network Research Exhibition: the Future of Networking and Computing with Big Data Streams

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SC22
INDIS Workshop
November 13, 2022

Enable Science Workflow and Network Interaction with Deterministic "Quality of Experience"

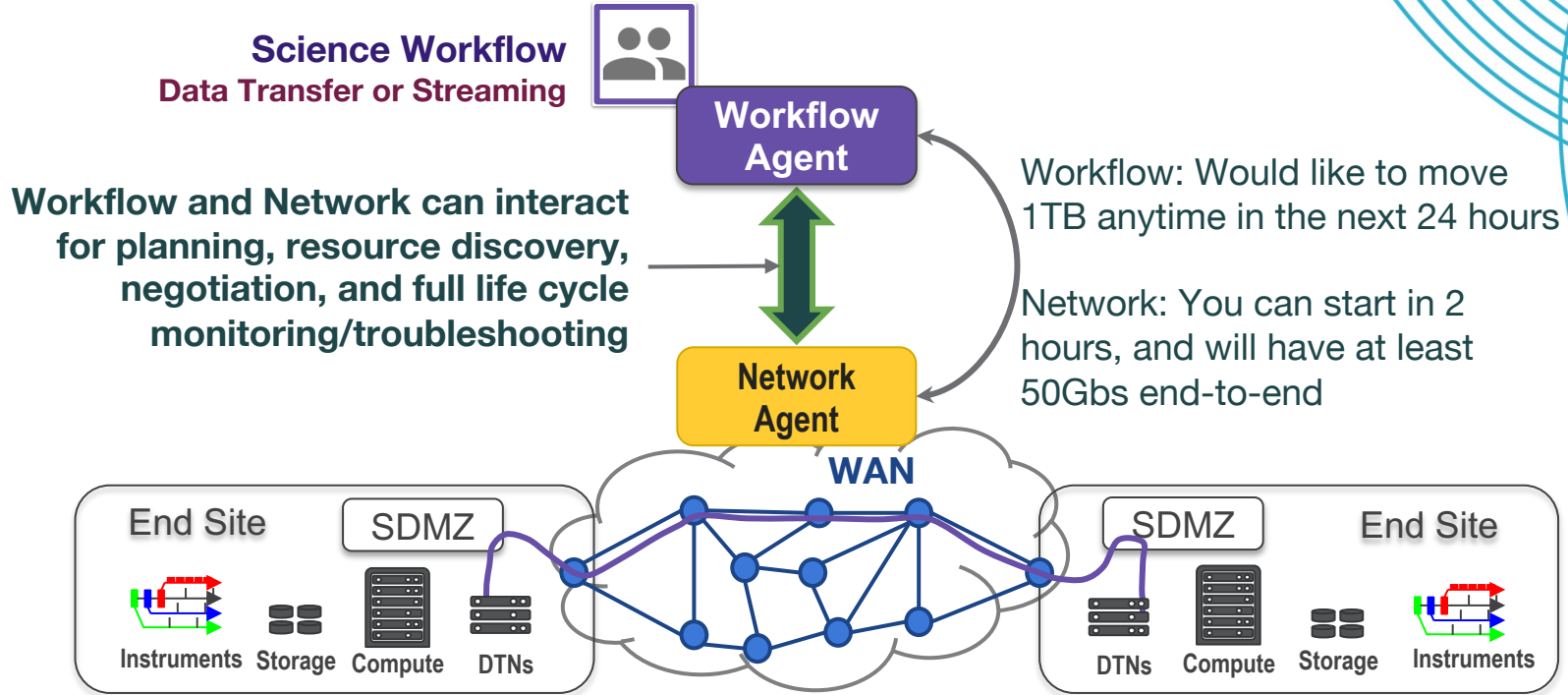
- No realtime per flow data available for planning or monitoring
- No "deterministic" network services available
- Start data flow, and hope for the best



Excellent Information available about aggregated (over time and data flows) use of the network infrastructure

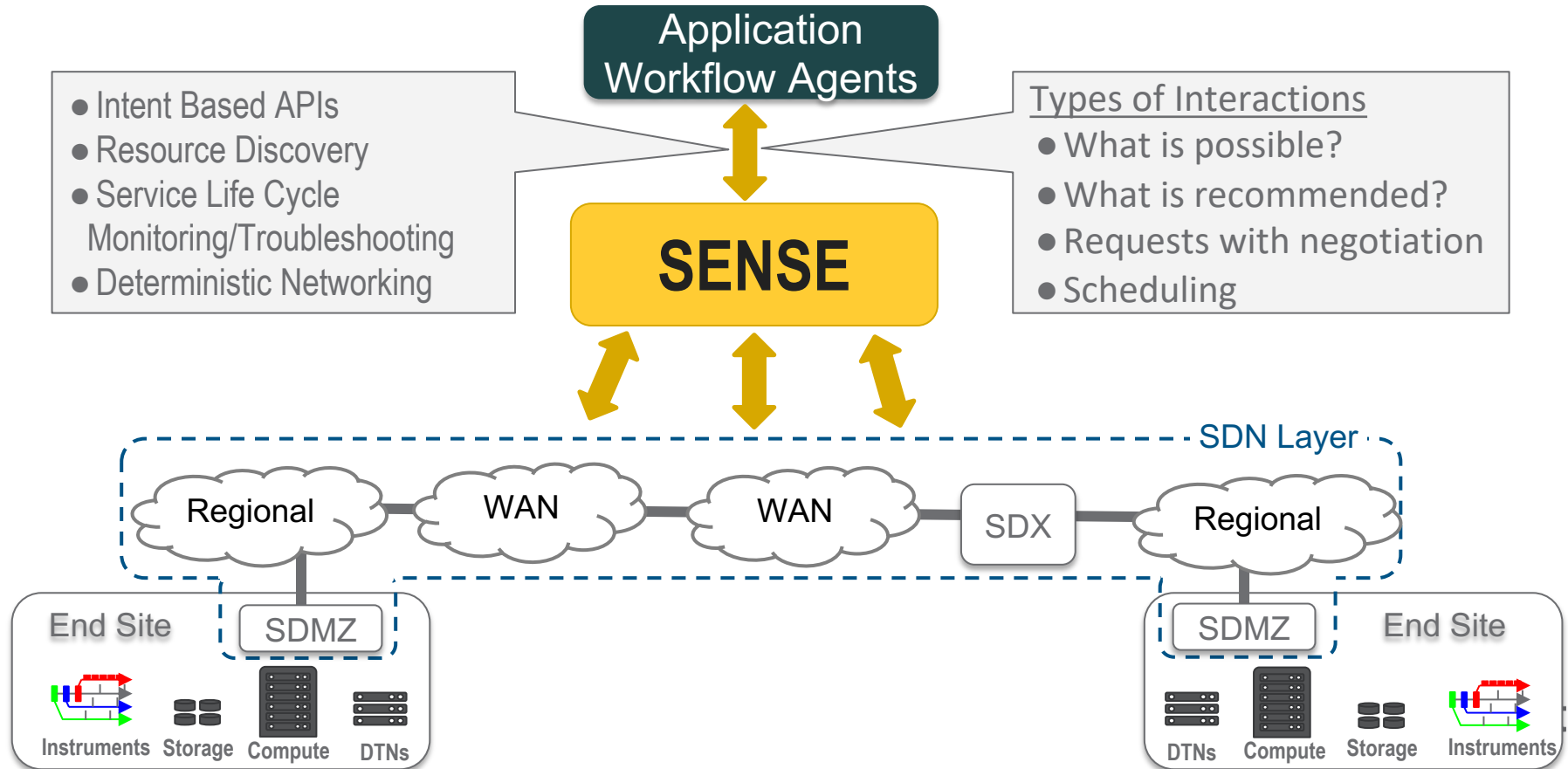
Elevate Network to First Class Resource

API driven Automation and Orchestration



- Allows workflows to identify data flows which are higher priority
- Allows the network to traffic engineer to fully utilize all network paths

Workflows can "coordinate" with End-to-End Networked Cyberinfrastructure

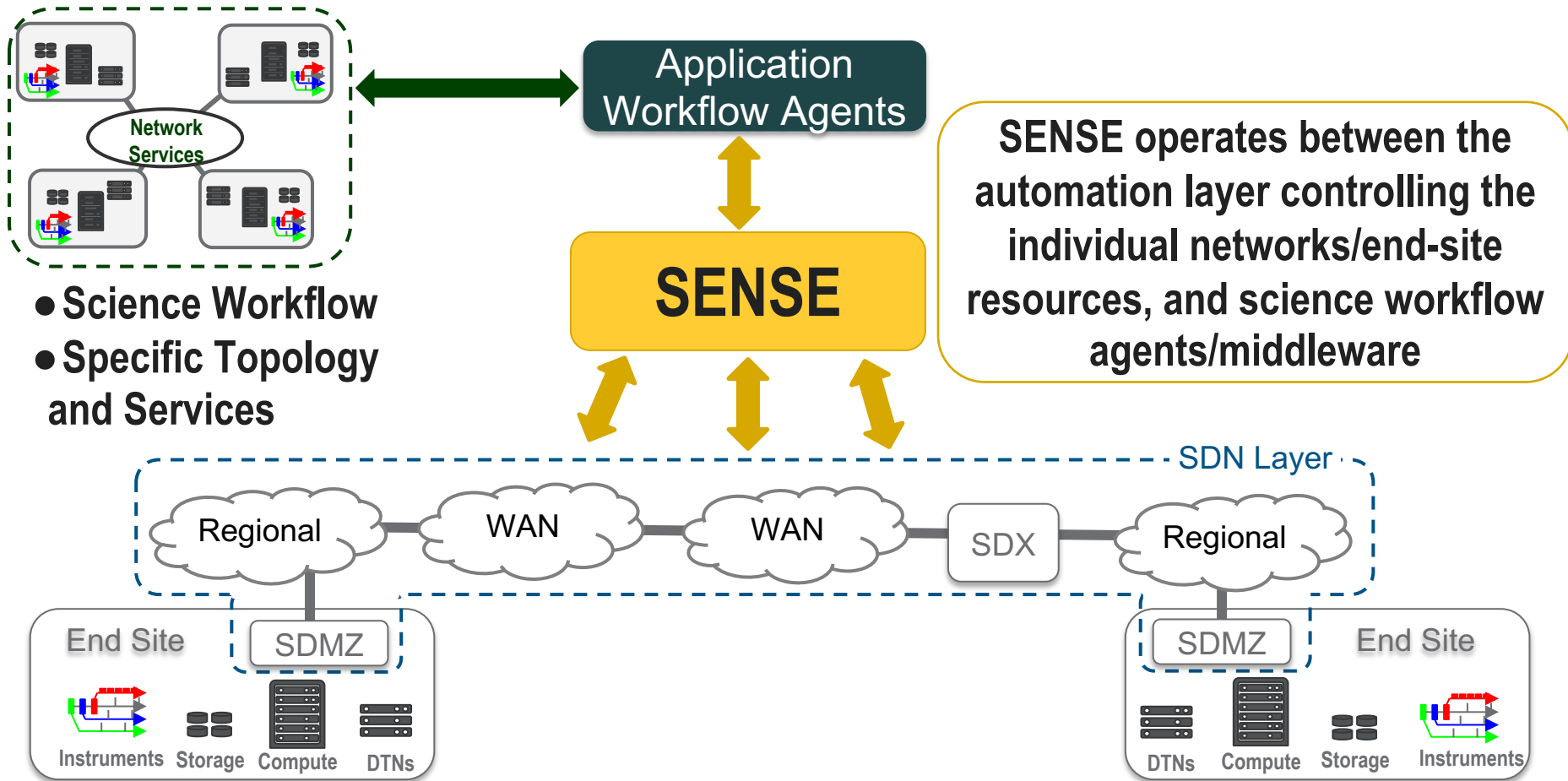


Key Themes

- Today, science workflows view the network as an opaque infrastructure - inject data and hope for an acceptable Quality of Experience.
- We should allow workflow agents to interact with the network - ask questions, see what is possible, get flow specific data and resources
- Science workflow planning should be able to include the networks as a first-class resource (along side compute, storage, instruments)
- This requires collaborative cross-discipline teams for workflow co-design
- The same mechanisms that allow the above can also be used for individual networks to distribute traffic more efficiently across entire infrastructure

Extras

SENSE - Multi-Resource / Domain Orchestration



SENSE and Rucio/FTS/XRootD Interoperation

- Rucio identifies groups of data flows (IPv6 subnets) which are "high priority"

