Sites, pledges and CRIC in DUNE

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Expressing requirements and requests

- Drafting the computing CDR has exposed some limitations with trying to categorise sites

- In particular, there is uncertainty about the shift from WLCG tier model to DOMA picture (which we previously adopted) and then to "data lakes"

- Some countries want to run CPU only sites in close cooperation with sites with storage

- Also CPU-only sites may or may not provide caches

  - In fact presence/absence of caches doubles the number of categories

- So instead **focus on services for the CDR** and when setting out requirements computing capacity

Sites and services model

- A site provides a set of services
  - **Each service** must meets DUNE's minimum requirements
    - Levels are being worked out as part of the CDR drafting
  - Each service has an overhead for the DUNE ops team, so we need to impose minimum capacities
- Always Network plus at least one of:
  - DUNE Compute Element
  - DUNE Storage Element ("disk")
  - Data Cache
  - Data Archive ("tape")
- Require at least WLCG Tier-2 incident response times and reliability
- Require formal or informal participation in WLCG (including via OSG)

More on services requirements

- DUNE Compute Element
    - A few hundred available processors at minimum
    - Subclasses to run simulation, data processing, data analysis jobs
    - Data jobs require "nearby" storage or cache
- DUNE Storage Element
    - A few hundred TB of disk at minimum
    - Sufficient network to get data in and out. A few hundred available processors "nearby".
- "Nearby" means good enough networking that jobs can access storage without unacceptably low CPU efficiencies

Sites, federations, and countries

- A site is the "atomic" unit of operations activity
  - Can receive tickets, turn up to meetings etc
- Sites are grouped into federations, as in WLCG
  - Pledges are made at the level of federations
  - Can be used to smooth out outages and planned site upgrades
  - Federation pledges entered into CRIC as with WLCG
- Countries consist of one or more federations
  - Generally map to funding bodies
  - Countries are represented directly or indirectly at CCB
  - Expected contributions from each country can be calculated from their share of the DUNE membership

Country / federation / site
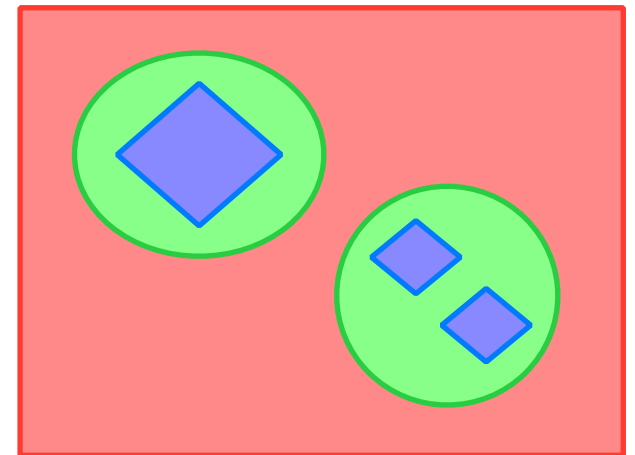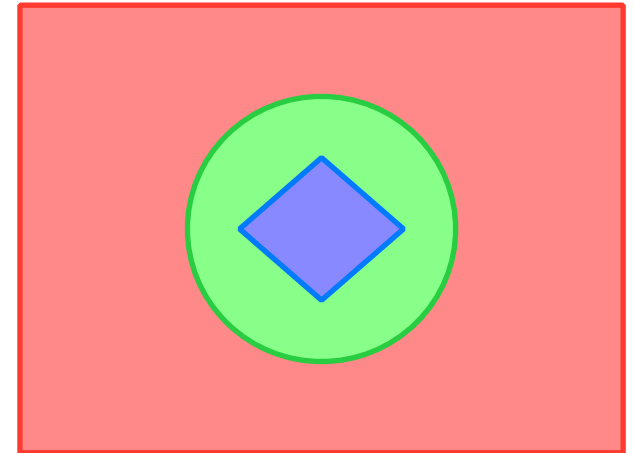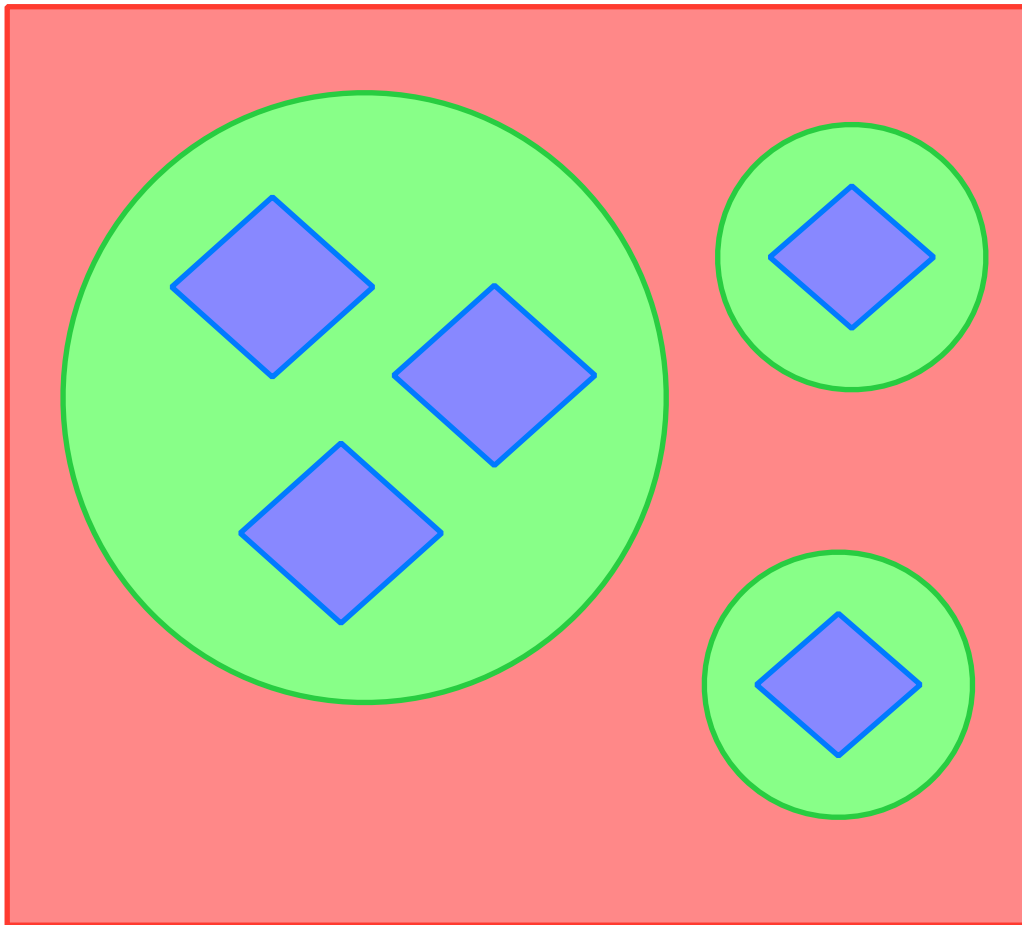
Pledges in CRIC

- DUNE CRIC service is in evaluation

- Same system as used in WLCG - hosted by CERN

- List of DUNE sites, generated from pilot factory configs

  - http://dune-cric.cern.ch/core/experimentsite/list/

- Federations can now enter their informal pledges to DUNE

  - Same process as LHC experiments

  - Listed at https://dune-cric.cern.ch/core/pledge/list/

- CRIC has machinery to compare requests and pledges

  - DUNE centrally will put global requests into CRIC

  - Can also pull in accounting info from APEL to see what was actually delivered

CRIC federation pledge creation

Sites, Pledges, and CRIC - Andrew.McNab@cern.ch - DUNE CCB, Nov 2020

CRIC federation pledges

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Summary / 30,000 ft view

- We put requirements on **services**

- DUNE ops people interact with **site** people

- Pledges are made by **federations** in CRIC

- **Country** representatives go to the CCB