Enabling dual stack on dedicated ATLAS nodes at SDCC to comply with WLCG requirement

WLCG has mandated all WLCG sites will be dual stack.
WLCG will start sending a ticket to all sites to monitor the progress.
The proposed deadline is the end of June.
This meeting is not the place to argue the validity of the mandate. —-> that is WLCG management.
WLCG mandate means all nodes used by ATLAS and Dune later if any. But, it also includes Belle II as well since the most of Belle II sites are the member of WLCG and Belle II is the member of LHCONE network. For the purpose of this, let's start with dedicated ATLAS nodes for their simplicity since no other experiments use them. And, that should cover big fraction of nodes. Only how to dual stack dedicated ATLAS queue will be discussed!

- According to ATLAS, all computing services are supporting IPv6. Therefore, dual stack should be ok.
- dCache Storage is dual stack at BNL.
- CVMFS is dual stack externally. The reverse proxies are missing internal IPv6 interfaces.
- Worker nodes are not dual stack. IPv4 only currently.
- Other none-dcache storage ?????
  - home/NFS
  - Anything else?
- What do we do about the shared pool nodes? Right now ATLAS OPP queue, and VP run on shared pool nodes. Additionally the two ATLAS GPU nodes are in the shared pool and not the T1 farm.
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Proposed steps to enable dual stack on dedicated ATLAS nodes
1. Enable one ATLAS worker node and one interactive node with dual stack
    a. Observe any issues on that node and fix them as they show up
    b. How long? One month?
    c. gai.conf can be used to initially force the preference to IPv4 over IPv6 .
        i. https://webdocs.sdcc.bnl.gov/cgit/puppet/catalog/tree/gce/base/files/gai.conf-prefer_IPv4_over_IPv6
        ii. It should include following one line to prefer IPv4 even with dual stack
            1. precedence ::ffff:0:0/96 100

2. Enable on one (or a few) rack(s) to dual stack
    a. How long?
3. Enable on all racks
    a. This
    b. When?   NOTE: This does not end the

Dec 4, 2023

Identifying the worker node for IPv6 test was done by the farm group (Kevin, …)
The test node: acas1010
The node is already drained from ATLAS jobs.
The host is ready to be dual stack.

Mark has kindly shared the spreadsheet showing the IPv6 readiness and associated address spaces shown below.

IPv4 Subnet	IPv6 Subnet	Function	Description	Usage	Building	Rack
130.199.153.128/26		Compute		Not In Use	725	C05
130.199.153.192/26		Compute		Not In Use	725	C06
130.199.153.64/26		Compute		Not In Use	725	C07
130.199.156.0/27	2620:0:210:8001::/64	Compute		In Use	515	49-7
130.199.156.128/27	2620:0:210:9002::/64	Compute		In Use	725	AE07
130.199.156.160/27	2620:0:210:9003::/64	Compute		In Use	725	AE08
130.199.156.192/27	2620:0:210:9004::/64	Compute		In Use	725	AE09
130.199.156.224/27	2620:0:210:9014::/64	Compute		In Use	725	AE19
130.199.156.32/27	2620:0:210:8002::/64	Compute		In Use	515	49-8
130.199.156.64/27	2620:0:210:8003::/64	Compute		In Use	515	49-9
130.199.156.96/27	2620:0:210:9001::/64	Compute		In Use	725	AE06
130.199.157.0/27	2620:0:210:9013::/64	Compute		In Use	725	AE18
130.199.157.128/27	2620:0:210:9006::/64	Compute		In Use	725	AE11
130.199.157.160/27	2620:0:210:9018::/64	Compute		In Use	725	AE23
130.199.157.192/27	2620:0:210:9017::/64	Compute		In Use	725	AE22
130.199.157.224/27	2620:0:210:8016::/64	Compute		In Use	515	51-5
130.199.157.32/27	2620:0:210:9005::/64	Compute		In Use	725	AE10
130.199.157.64/27	2620:0:210:8011::/64	Compute		In Use	515	51-9
130.199.157.96/27	2620:0:210:8012::/64	Compute		In Use	515	51-8
130.199.158.0/27	2620:0:210:8017::/64	Compute		In Use	515	51-6
130.199.158.128/27	2620:0:210:8021::/64	Compute		In Use	515	50-3
130.199.158.160/27	2620:0:210:8022::/64	Compute		In Use	515	50-4
130.199.158.192/27	2620:0:210:8023::/64	Compute		In Use	515	50-5
130.199.158.224/27	2620:0:210:8024::/64	Compute		In Use	515	50-6
130.199.158.32/27	2620:0:210:8018::/64	Compute		In Use	515	51-7
130.199.158.64/27	2620:0:210:8019::/64	Compute		In Use	515	50-1
130.199.158.96/27	2620:0:210:8020::/64	Compute		In Use	515	50-2
130.199.159.0/27	2620:0:210:8025::/64	Compute		In Use	515	49-15
130.199.159.128/27	2620:0:210:8029::/64	Compute		In Use	515	49-19
130.199.159.160/27	2620:0:210:8030::/64	Compute		In Use	515	49-20
130.199.159.192/27	2620:0:210:8031::/64	Compute		In Use	515	49-21
130.199.159.224/27	2620:0:210:8032::/64	Compute		In Use	515	49-22
130.199.159.32/27	2620:0:210:8026::/64	Compute		In Use	515	49-16

Acas1010.usatlas.bnl.gov 130.199.159.12   so, IPv6 will be 2620:0:210:8025::c