What the SG1100 is

- The SG1100 is a StorageGRID **services** appliance, not a capacity (disk) node; it runs Admin Node and Gateway Node roles for the grid.
- You can deploy it as a primary or non-primary Admin Node, a Gateway Node, or both roles at the same time on a single appliance.
- It is designed to provide high-availability load balancing and traffic shaping for S3/Swift data paths, front-ending your StorageGRID storage nodes.

Networking and ports

- The SG1100 has four high-speed data ports that can run at 10/25/40/100 GbE, depending on optics/cables, switch speed and link configuration.
- It supports QSFP56 (100 GbE), QSFP28 (100 GbE), and QSFP+ (40 GbE) natively; you can also use SFP+ (10 GbE) or SFP28 (25 GbE) in a QSA adapter for lower speeds.
- These four ports connect to the Grid Network and/or Client Network, using fixed or LACP bond modes for redundancy and bandwidth aggregation.
- Separate 1/10 GbE RJ-45 ports exist for the Admin Network and BMC (out-of-band management), plus local diagnostic ports (VGA/USB/serial, reserved for support).

Roles in a StorageGRID deployment

- As a Gateway Node, it terminates client S3 or Swift connections and uses the built-in StorageGRID load balancer to distribute traffic across storage nodes, with support for HA groups and virtual IPs.
- As an Admin Node, it hosts the Grid Manager/UI, API endpoints for management, audit/logging, and some control-plane services; you can run both Admin and Gateway roles on the same SG1100.
- Typical patterns are: pairs of SG1100s as HA gateways, pairs of SG1100s as redundant Admin Nodes, or mixed roles (Admin+Gateway) with both appliances in the same HA group.

Hardware and operations

- The SG1100 includes a baseboard management controller (BMC) for out-of-band monitoring, power control, and hardware diagnostics.
- It fits in a standard rack using vendor rails; installation and link/bond configuration is done through the StorageGRID Appliance Installer web interface.
- After deployment as an Admin or Gateway Node, ongoing maintenance (firmware, link changes, replacement) is documented in the SG110/SG1100 maintenance procedures.

To tailor this better: are you mainly interested in sizing/throughput characteristics for design, or in practical setup details like VLANs, LACP, and HA groups for an upcoming deployment?

You can treat the SG1100 as your high-bandwidth "front door" for StorageGRID (Admin + Gateway together), and design/network it around four 10–100 GbE ports plus separate Admin/BMC management.

1. Design and sizing view

From a design perspective, the **SG1100** is a services appliance only: it does not store object data; it runs Admin Node and/or Gateway Node roles

- Typical uses:
  - One or more SG1100s as Gateway Nodes in an HA group for S3/Swift VIPs.
  - One or more SG1100s as Admin Nodes (primary and/or non-primary) to host Grid Manager, audit, metrics, etc.
  - Mixed: SG1100 running Admin+Gateway roles, with two appliances in the same HA group for a fully redundant front-end.
- When mixed with SG100/SG110 vs SG1000/SG1100 in the same HA group, NetApp warns about inconsistent behavior because of different performance classes; keep HA groups homogeneous where possible.
- Required StorageGRID software: StorageGRID 11.8 or later (latest hotfix recommended) for SG1100 deployments.

Sizing-wise, think of it as: "How many Admin/Gateway nodes do I need for aggregate client throughput, HA VIPs, and control plane redundancy?" Storage capacity is driven by the back-end storage nodes (e.g., SG6xx, software nodes), not the SG1100.

2. Hardware and interfaces

Physically it's a 1U services node with mirrored SSDs for OS and node data.

- Two internal SSDs (RAID 1) store the StorageGRID OS and node data such as audit logs, metrics, and database tables when used as an Admin Node.
- Front drive bays beyond the two SSDs are blank; it isn't a storage appliance.
- Important rear connectors on SG1100:
    - 4 × high-speed data ports (QSFP56/QSFP28/QSFP+) supporting 10/25/40/100 GbE depending on optic/QSA, switch, and configured link speed.
    - 1 × BMC management port (1 GbE RJ-45) for out-of-band IPMI/BMC access.
    - 2 × Admin ports (1/10 GbE RJ-45) for the optional Admin Network.
    - Local diagnostic ports (VGA, USB, micro-USB console, micro-SD) reserved for support.

The BMC gives you power control, sensor/health monitoring, and remote console; you can (and usually should) disable remote IPMI in Grid Manager if you don't need low-level remote access.

3. Network topology and bond modes

You effectively have three StorageGRID networks plus the BMC network:

- Grid Network (required): internal grid traffic.
- Client Network (optional): client S3/Swift access, usually where HA VIPs live.
- Admin Network (optional): management/UI/SNMP/SSH.
- BMC management network (optional but recommended): out-of-band.

Data ports (Grid/Client)

The four QSFP ports carry Grid and optional Client traffic, with two main bond models:

1. **Fixed mode** (default):
    - Ports 2+4 bond for Grid, ports 1+3 bond for Client.
    - Each pair can be Active-Backup or LACP (802.3ad).
    - Simple design: e.g., ports 2/4 into one LACP LAG for Grid, 1/3 into another LAG for Client, each to redundant top-of-rack switches.
2. **Aggregate mode**:
    - All connected ports are in one big LACP bond and carry tagged VLANs for Grid and Client.

    - Requirements: LACP on the switches, VLAN tagging for each network, and MLAG (or equivalent) if you span multiple switches.
    - This gives maximum throughput and flexible use of all links for both networks.

You can cable 1–4 ports; using fewer than all four can trigger "link down" alerts that you can safely disable if intentional.

Admin ports

The two 1/10 GbE Admin ports support: on Admin Network, right port reserved for temporary local access (169.254.0.1), no redundancy.

- **Active-Backup mode**: both ports bonded as one logical Admin interface with failover.[17]

If you need to use the 169.254.0.1 local access when in Active-Backup, you temporarily unplug both Admin cables, plug your laptop into the right port, then connect to that IP

BMC port

- Single 1 GbE BMC port to your management/OOB network.[17]
- Collects IP settings via DHCP or static; Grid Manager lets you toggle "Enable remote IPMI access" for all appliances.

4. Practical design tips

Based on how these appliances are intended to be used:

- For a small to mid-size site:
    - Deploy two SG1100s, each as Admin+Gateway, in the same HA group.
    - Use HA VIPs on the Client Network for S3 endpoints; use the Admin Network for management.
    - On data ports, use aggregate mode with 4 × 25 GbE or 4 × 100 GbE and LACP/MLAG to dual ToR switches.
- For a larger site or where you want strict separation:
    - Two SG1100s as Admin Nodes only (control plane), two additional services appliances (or VMs) as Gateway-only.
- Keep HA groups homogeneous (all SG1100, not mixed with SG110/SG1000) to avoid inconsistent load balancing behavior.

- Use jumbo frames on grid/client links (e.g. MTU 9000) if your network is consistent end-to-end; MTU is configurable per network in the appliance installer.
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- At a high level, deployment looks like this:

1. **Pre-check StorageGRID**
    - Confirm your existing grid runs StorageGRID 11.8+ (or install 11.8+ for a new grid).
2. **Gather network info**
    - For Admin Network: IP/subnet/GW, bond mode (Independent vs Active-Backup), switch port IDs, DHCP vs static.
    - For Grid Network: IP/subnet/GW, bond mode (Fixed vs Aggregate, Active-Backup vs LACP), VLAN tags (if used), MTU, switch ports.
    - For Client Network: enable/disable, IP/subnet/GW, bond mode, VLAN, switch ports.
    - For BMC: switch port, IP settings, remote IPMI policy.
3. **Rack, cable, and power on**
    - Install in rack with vendor rails, cable power, 4× data, Admin, and BMC as designed.
4. **Use StorageGRID Appliance Installer**
    - Reach the appliance installer via Admin or temporary local IP.
    - Apply the network config (bonds, VLANs, MTUs, IPs) using the values you gathered or via a JSON from ConfigBuilder.[17]
    - Select node role (Admin, Gateway, or both) and assign it to a new or existing.
5. **Configure HA and load balancer**
    - In Grid Manager, define HA groups across your SG1100 nodes, assign VIPs, and configure load balancer endpoints for S3/Swift (ports, certificates, etc.).

If you share your planned uplink speed (10/25/40/100 GbE) and whether your switches support LACP+MLAG and VLANs, I can sketch a concrete port map and HA layout for, say, a 2×SG1100 site.