

Google Distributed Cloud air-gapped Racks

As of 1.13.3 release

Google Distributed Cloud (GDC) air-gapped racks deliver a fully managed cloud experience with a rich set of services to enable lift and shift workloads or cloud native workloads. The system is designed from the ground up for organizations that require complete isolation to meet stringent sovereignty and regulatory requirements.

GDC air-gapped racks do not require connectivity to Google Cloud (public cloud) or the public internet to manage the infrastructure services and are built to operate in a persistent disconnected mode.



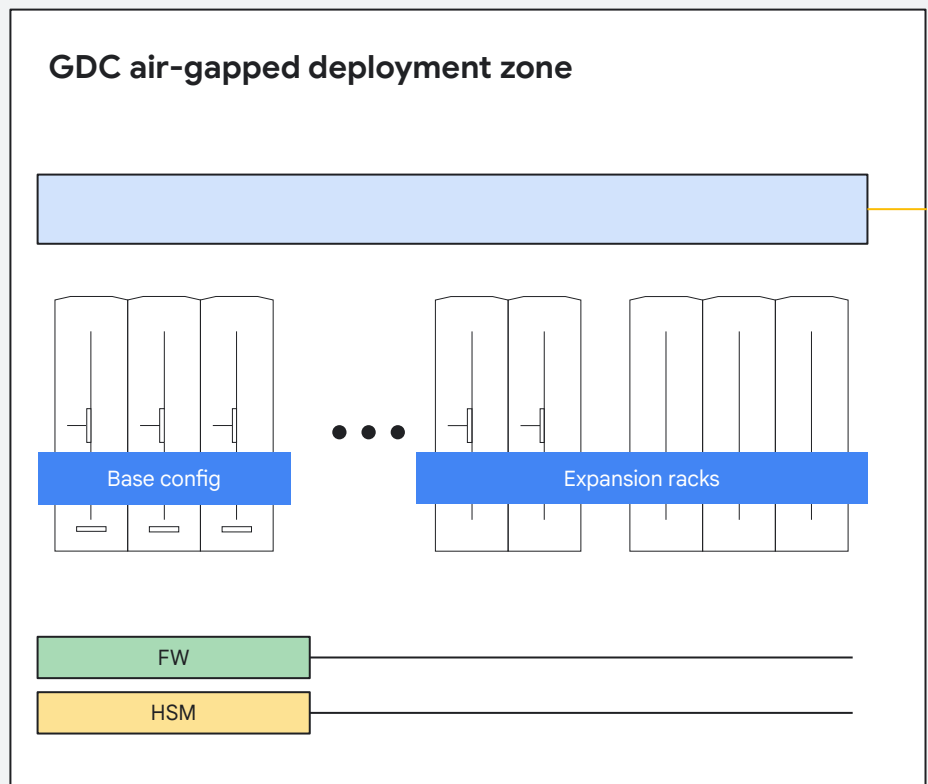
Terminology

Expansion slots:

Expansion slots are designated spaces in a rack for modular expansion blocks.

Expansion blocks:

Expansion blocks are modular hardware blocks that add specific compute or GPU or storage capabilities (Block, File, or Object) to expansion racks.



Key benefits



Fully integrated, turnkey solution:

Designed to meet infrastructure needs including [compute, storage, networking, and security](#).



State-of-the-Art Technology:

Powered by next-generation hardware, GDC air-gapped racks feature Hopper Nvidia accelerators, Intel's Emerald & Sapphire Rapids processors, and a 400G switching fabric, providing cutting-edge technology.



Customizable and Modular Design:

The modular design allows for incremental growth, offering a choice of instance types and capacity expansion in blocks or entire racks.

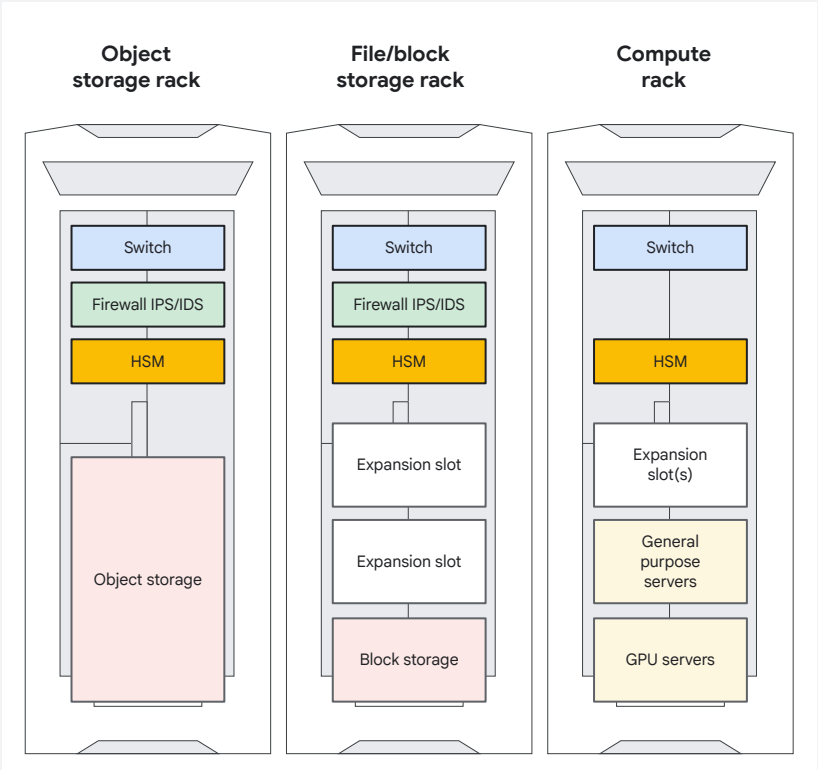


Scalable:

The modular architecture enables customers to begin with a three racks base configuration and an Operations Suite Infrastructure Rack (OIR). As workload demands increase, customers can seamlessly expand capacity by adding storage or compute.

GDC air-gapped racks base configuration

This is the minimum GDC air-gapped racks footprint, consisting of 3 racks that include a default configuration of 22 servers:



Component	Specifications
Number of racks	3 racks total 1 x compute rack 1 x object storage rack 1 x File/Block rack
Rack dimensions	HPE 42U, 78.98 x 44.30 x 31.34 in (HxWxD)
Input power	3-phase power AC power, options supported: 208v(60 amp) or 415v(30 amp) or 400v(32 amp)
Base compute footprint	21 x General Purpose Servers Intel® Xeon 4th Gen (Sapphire Rapids): 96vCPU 512GB RAM 50Gbps bandwidth 1 x H100-GPU server Intel® Xeon 5th Gen (Emerald Rapids): 128 vCPU 1TB RAM 2 x 2 NVL H100 Nvidia GPU 50Gbps bandwidth

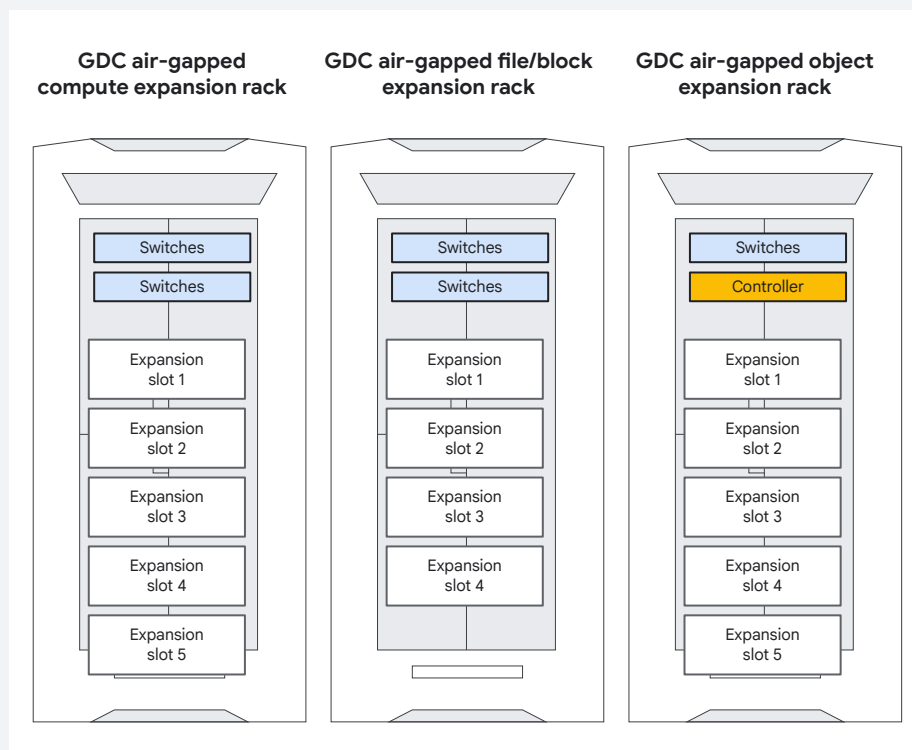
Base compute total capacity	Total vCPUs: 1,376 vCPU Total RAM: 7,600 GiB Total User Disk: 46 TiB
Base storage capacity	Object Storage: 879 TiB File/Block Storage: 262 TiB
Rack Uplink bandwidth	1.6 Tbps per rack
Security	3 x HSMs 2 x IDS/IPS 2 x Perimeter FW
Maximum power draw per rack	22kW at 100% load; 18.7kW at 75% load
Minimum power draw per rack	17kW at 100% load; 14kW at 75% load
Cooling	65k-82k BTU
Expansion slots	1 x compute expansion slot: occupied by either general expansion block or H100-GPU block 2 x file/block expansion slot for File/block expansion block

GDC air-gapped ops suite infrastructure rack

Operations Suite Infrastructure Rack (OIR) supplies compute for operations and is not available for running customer workloads. One OIR rack is required per deployment, with an optional second rack available for geographic redundancy.

Component	Specifications
Compute footprint	5 x servers Intel® Xeon 4th Gen (Sapphire Rapids): 96vCPU 1TB RAM 2 x servers Intel® Xeon 4th Gen (Sapphire Rapids): 48 vCPU 512GB RAM
Rack dimensions	2 x Perimeter FW
Input power	Total Uplink Bandwidth: 800 Gbps
Power draw	7kW at 100% load; 6kW at 75% load

GDC air-gapped expansion racks



Category	GDC air-gapped compute expansion rack	GDC air-gapped file/block expansion rack	GDC air-gapped object expansion rack
Rack dimensions	42U, 78.98 x 44.30 x 31.34 in (HxWxD)		
Input power	3-phase power, options supported: North America: 208v (60 amp) or 415v (30 amp) Rest of the world: 400v (32 amp)		
Max power draw by a fully populated rack	22kW at 100% load 18.7kW at 75% load	14kW at 100% load 10kW at 75% load	14kW at 100% load 9kW at 75% load
Min power draw by a partially populated base rack	17 kW at 100% load 14 kW at 75% load	7kW at 100% load 5kW at 75% load	7kW at 100% load 4kW at 75% load
Expansion slots	5	4	5
Rack uplink bandwidth	1.6 Tbps		

GDC air-gapped general purpose expansion block

Specification	GPU Compute
Quantity per expansion block	1 server (2U per server)
Accelerator	2X2 NVL H100 GPUs
vCPU*	128 vCPU Intel® Xeon® Sapphire Rapids
RAM (TB)*	1
Storage (TiB)*	46
Max Power Draw*	2.7 KW at 100% load
Max Network Bandwidth*	50Gbps

* Total per block

GDC air-gapped storage expansion block

Component	GPU Compute	Object Expansion Block
Quantity per expansion block	1 block storage shelf (6U)	1 object storage node (5U)
Total storage capacity	262 TiB	293 TiB
Max power draw per block	2.3 kW	2 kW
Max Network Bandwidth*	100Gbps	100Gbps