QRF | GLOBAL HARDWARE CAPEX

Physical infrastructure purchase/build model | Public calculation appendix

Recorded technical foundation. QRF benchmark records cover Routing, AI Resource Allocation and Storage Placement & Replication. Routing reached 500 million nodes and approximately 3 billion edges on a 6-core, 16 GB, CPU-only desktop-class machine. The 500M test is a resource-stress test point, not an architectural memory ceiling.

Capital baseline. The $1,000 QRF Core-machine purchase price and the seven company-ecosystem datacenter baselines below are defined calculation inputs. They are not audited purchase totals for those companies. The 100% column is full baseline CAPEX, while 25%/50%/75% are replacement scenarios.

Technology ecosystem	CAPEX	25%	50%	75%	100%
AWS	$10M	$2.5M	$5M	$7.5M	$10M
Microsoft Azure	$25M	$6.25M	$12.5M	$18.75M	$25M
Google Cloud	$50M	$12.5M	$25M	$37.5M	$50M
Meta AI	$100M	$25M	$50M	$75M	$100M
OpenAI / partner compute	$250M	$62.5M	$125M	$187.5M	$250M
Oracle OCI	$500M	$125M	$250M	$375M	$500M
NVIDIA ecosystem	$1,000M	$250M	$500M	$750M	$1000M

Hardware calculation

Gross avoided future CAPEX = eligible baseline hardware/facility CAPEX x replacement share x number of independent deployments. Net economic benefit = gross avoidable investment + attributable operating savings - QRF production hardware, integration, migration and operating costs.

Worked example

At $100M eligible CAPEX per site: 25% = $25M; 50% = $50M; 75% = $75M; 100% = $100M. At 100 independent sites, the respective gross CAPEX exposures are $2.5B, $5B, $7.5B and $10B.

Physical infrastructure components

Illustrative $100M facility: compute/accelerators $65M + memory/storage $12M + networking $8M + power/cooling $10M + facility $5M. Only assets supporting QRF-compatible functions enter the eligible replacement pool.

Interpretation

Company labels identify the scale of relevant global technology ecosystems, not audited company-specific equipment prices. The model contains no cloud rental, no subscription comparison, and no Full-IP transaction valuation.