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Buying Time

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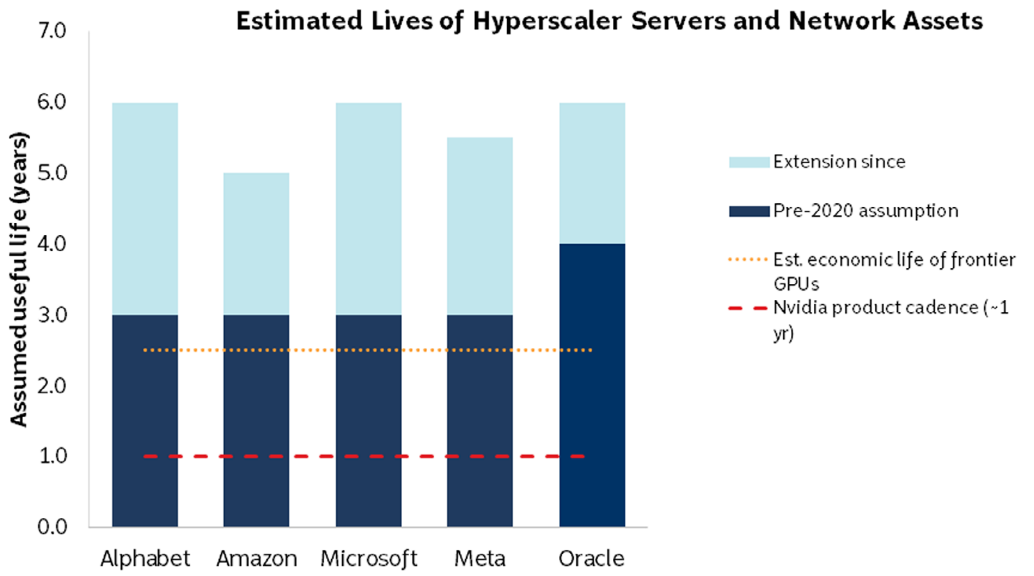

Source: Company 10-K and 10-Q filings. Useful lives cover server and network equipment, not GPUs alone. Estimated economic life of frontier GPUs reflects external estimates, not company disclosure. Amazon reduced the assumed life of a subset of servers from six years to five with effect from January 2025. Data to 30 June 2026.

What does the chart show?

This chart shows three things side by side: how long the five largest US hyperscalers assume their servers and network equipment will last, how long the chips inside are estimated to stay economically useful (yellow line), and how often Nvidia, the current dominant chip supplier, is releasing new generations of chips (red line). In 2019 three years was the standard accounting answer. Today it's five or six.

Graphics processing units (GPUs), the specialised chips that do the parallel maths AI models run on, are not disclosed as separate balance sheet items. They sit inside "servers and network equipment", and none of the five publishes a life for them alone. The bars are therefore a blend, from switches to frontier chips.

The blend, however, is changing. Around three-quarters of hyperscaler capital spending is now AI-related, against a small fraction before 2023, so each new vintage of capital expenditure entering the asset pool is weighted towards the shortest-lived assets. Depreciation runs off equipment already installed, so today's charge reflects an older, cheaper, less GPU-heavy fleet than the one being built now.

Why this is important

Taking Alphabet, its capital expenditure has grown from $52.5bn in 2024 to $91.4bn in 2025, with $200bn guided for 2026. Across all five, roughly $550bn was spent on property and equipment in the last twelve months against about $160bn of depreciation, over three times the rate the income statements recognise. Assets under construction aren't depreciated until switched on.

For the replacement cycle, Nvidia used to leave about two years between GPU generations: Ampere in 2020, Hopper in 2022, Blackwell in 2024. It now ships annually with Blackwell Ultra in 2025 and Rubin this year and each delivers more compute per dollar and per watt. The older chip still works but it earns less, because the alternative is cheaper to run.

Accounting lives have lengthened towards six years while external estimates of economic life cluster at two to three, and the hardware cycle has compressed to 12-18 months. Nobody outside these companies can easily adjudicate it, because the disclosure doesn't separate the assets.

There is also a question of method, not just length. These assets are depreciated on a straight-line basis, which assumes benefit accrues evenly. Management defend this by reasoning that older chips continue to be used for inference and less demanding work, however that describes a benefit that declines with age which argues for front-loading the depreciation charge, not extending it.

A six-year life also assumes six years of paying customers. In the late 1990s the buyers of telecoms equipment were profitable giants. Today much of the contracted cloud revenue sits with model developers still losing money. Six years may still be right, but some of the earnings growth now forecast for the S&P 500 is accounting arithmetic, with attractive returns on capital still to be determined.

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