How many optical modules are in one rack

Overview

While the industry-standard OSFP (Octal Small Form-Factor Pluggable) module has successfully enabled 400Gbps, 800Gbps, and 1. 6Tbps optical pluggable modules , it is limited to 32 modules per Rack Unit (RU), typically requiring 2 RUs to achieve 102. 8Tbps of switching. The actual number of optical modules used primarily depends on the following factors. 6T QSFP-DD or OSFP modules, provide: In short: each NVIDIA GPU node needs multiple optical links to achieve optimized throughput in AI supercomputers. So, how many optical modules does a data center typically need?

In this post, we will explore the usage of optical modules in traditional three-tier, improved. In the market, there are different versions of the ratio of optical transceivers to the number of GPUs, and the figures of various versions are not consistent mainly because the amount of optical modules required under different networking architectures is not the same. As CPO is increasingly used, concerns about reliability and manufacturability will be addressed, and as bandwidth keeps going up, CPO will take over all scale-up connections over the next few.

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Example: an AI data center with 1,000 H100 GPUs could require over 10,000 optical modules when accounting for multi-link redundancy, intra-rack, and inter-rack connections.

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Optical interconnect is then used to connect all the racks to the OCS rack to create a larger pod, with up to 9,216 TPUs. Fig. 21: Optics enables scale-up to 9216 TPUv7 = 144 racks. …

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