

Using SFP+ 10GBASE-T Connectivity in Cisco Enterprise and Data Center Applications

In recent years, we have seen the proliferation of end points in which RJ-45-based 10Gbps connectivity has become more popular. These include rack servers, storage servers, and compute appliances to name a few.

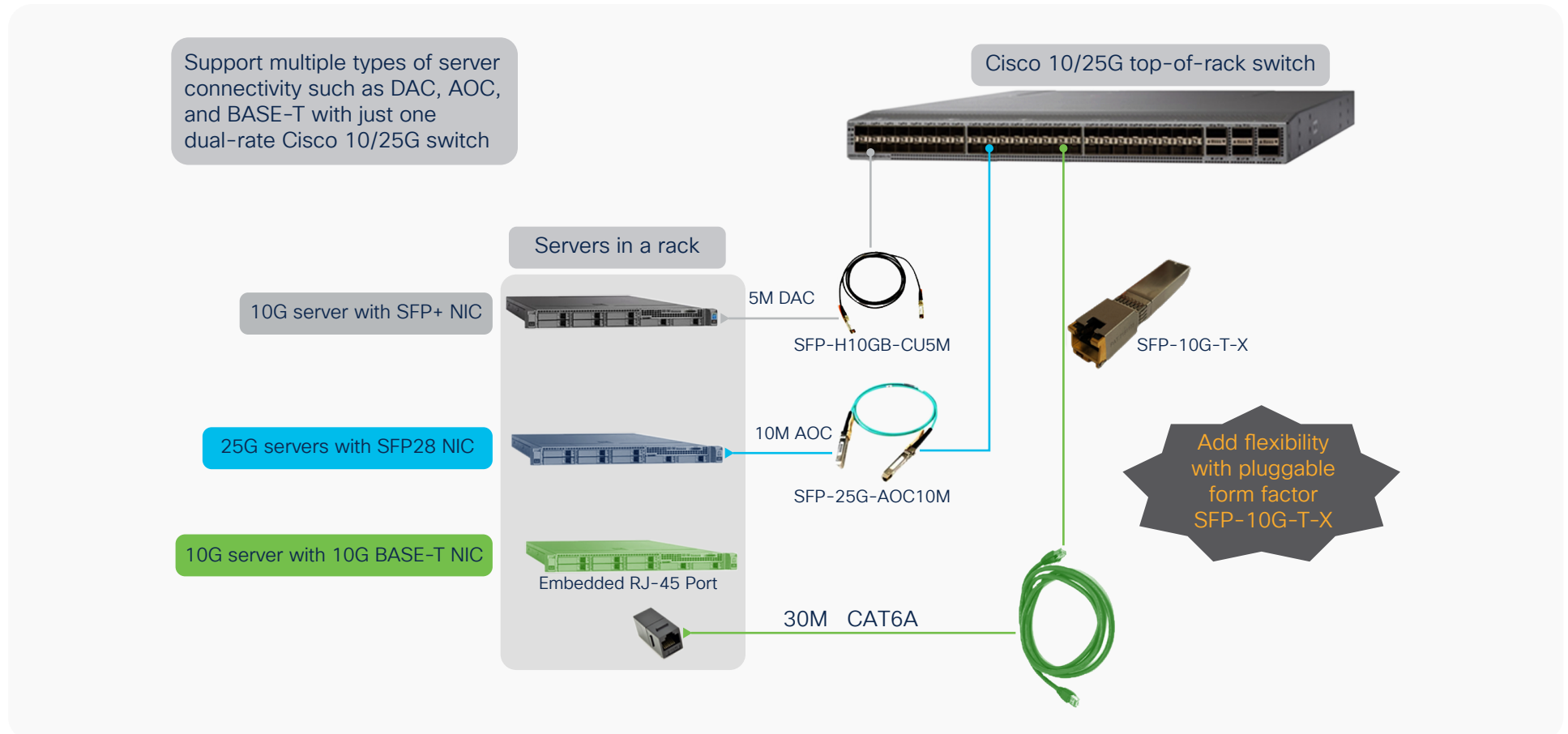
While existing 10GBASE-T switches such as the Cisco® Nexus N93108TC-FX can provide such connectivity today, the introduction of the SFP+ modular form factor enables variety and flexibility in deployment. Instead of having to deploy a second dedicated 10GBASE-T switch, the SFP+ module can enable Cisco 10G and dual rate 10/25Gbps switches and routers to connect to 10GBASE-T RJ-45 endpoints using CAT6A cables.

Benefits

- Enables connectivity to end points where 10GBASE-T RJ-45 connectivity has become more popular—these include rack servers, storage servers, and compute appliances.
- Multirate capability: 100M/1G/10Gbps
- Autonegotiation capability varies by platform
- Connectivity over CAT5e and CAT6A cables
- Enables 10GBASE-T connectivity on Cisco dual-rate 10/25G switches and routers

Figure 1 shows how a variety of end points such as 25G servers, 10G servers, and 10GBASE-T servers can be connected from within the same rack to a dual-rate Cisco 10/25G top-of-rack switch.

Figure 1. Enabling a variety of connectivity options to Cisco 10G and dual-rate 10/25G switches/routers



SFP+ 10GBASE-T Transceiver Features and Capabilities

The SFP-10G-T-X transceiver offers connectivity options at the following data rates: 100M/1G/10Gbps. To support the 10Gbps data rate, the CAT6A cables are needed. For Cisco switches and routers that support 10/25Gbps data rates, this enables a new form of connectivity not available before: 10GBASE-T.

The current transceiver in this category, the GLC-TE allows 1000BASE-T connectivity on 1/10/25Gbps switches and routers. The SFP-10G-T-X increases the data rate to 10Gbps when CAT6A (or better) cables are deployed. The Cisco SFP-10G-T-X transceiver is depicted below, along with cables from Panduit.



Cisco SFP-10G-T-X



CAT6A/7 Cables (Courtesy: Panduit)

The table outlines the different BASE-T connectivity options from Cisco using different cable types and reaches.

Cisco PIDs	Speeds	Cable Type	Distance	Max. Power
SFP-10G-T-X, GLC-TE	100M/1Gbps	Cat5e	Up to 100 meters	1.0W
SFP-10G-T-X, GLC-TE	100M/1Gbps	Cat6A/Cat7 or better	Up to 100 meters	1.0W
SFP-10G-T-X only	10Gbps	Cat6A/Cat7 or better	Up to 30 meters	2.5W

The table outlines the different BASE-T connectivity options using different cable types and reaches.

Call to action

For more details on the SFP+ module, please review the [Cisco 10G data sheet](#). For questions on platforms supported, please refer to the platform hardware installation guides as well as the TMG compatibility matrix. (<https://tmgmatrix.cisco.com/>). Please contact your Cisco sales representative on how to place an order.

Broadening the Existing 10/25G Transceiver Portfolio for Enterprise and Data Center Applications

Cisco offers a broad portfolio of transceivers to enable 10/25G connectivity for enterprise and data center applications. Cisco already offers [10Gbps](#) and [25Gbps](#) cables and transceivers at several reaches. The SFP-10G-T-X fills the gap with 10GBASE-T connectivity.

Variety of Cisco Platforms Supported

The SFP-10G-T-X will be supported on a variety of Cisco platforms, including NCS 5501, Nexus 9000, and Catalyst® 9000. However, the maximum power consumption of SFP-10G-T-X (rated 2.5W per port at 30 meters) imposes certain restrictions in deployment. Typically, the SFP+/SFP28 ports on Cisco switches are designed and rated to support transceivers that can dissipate up to 1.5W power. Given the higher power envelope of SFP-10G-T-X, Cisco switches and routers will not be able to fully populate a chassis and deploy all possible ports with the SFP-10G-T-X.

The table below summarizes the platforms that will support the SFP-10G-T-X as well as deployment limitations.

Cisco platforms supported	Cisco-supported switches/routers	Deployment limitations
Cisco Nexus 9000 Series	N93180YC-FX/EX N93240YC-FX2 N93360YC-FX2	Cannot fully populate the chassis. See Platform Hardware Installation Guide
NCS5500 Series	NCS5501	Cannot fully populate the chassis. See Platform Hardware Installation Guide
Catalyst 9000 Series	*TBD	Cannot fully populate the chassis. See Platform Hardware Installation Guide

*As more platforms get added, please refer to the Cisco compatibility matrix (<https://tmgmatrix.cisco.com/>) for an updated list of platforms as well as software release information.