

Time Sensitive Network (TSN)

[Return to Glossary](#)

Time Sensitive Network (TSN) is the [Institute of Electrical and Electronics Engineers \(IEEE\)](#) 802.1Q defined standard technology to provide deterministic messaging on standard Ethernet. **TSN** technology is centrally managed and delivers guarantees of delivery and minimized [Jitter](#) using time scheduling for those [Real-Time Application \(RTA\)](#) that require determinism.

TSN is a [Open Systems Interconnection \(OSI\) Model Physical Layer](#) (i.e., **Layer 2**) technology. The IEEE 802.1Q standards work at OSI Layer 2. **TSN** is an [Ethernet](#) standard, not an [Internet Protocol \(IP\)](#) standard. The forwarding decisions made by the **TSN** bridges use the Ethernet header contents, not the [Internet Protocol Address \(IP Address\)](#). The payloads of the Ethernet frames can be anything and are not limited to Internet Protocol. This means that **TSN** can be used in any environment and can carry the payload of any [Industrial Application](#).

TSN was developed to enable deterministic communication on standard Ethernet. The market for deterministic communication is using nonstandard technologies or nonstandard Ethernet. Prior to the IEEE 802.1 **TSN** standards, standard Ethernet didn't have pure [Layer 2](#) deterministic capability.

Deterministic communication is important to multiple industries (for example, aerospace, automotive, manufacturing, transportation, and utilities). Providing a means for determinism over standard Ethernet enables new levels of connectivity and optimization, leading to cost savings for many industries.

As the name suggests, "time" is the primary aspect of **TSN**. **TSN** is a technology focused on time. **TSN** was developed to provide a way to make sure information can travel from point **A** to point **B** in a fixed and predictable amount of time. Being predictable enables increased efficiency.

There's an implied requirement for those networking devices implementing **TSN** ([Endpoint](#) devices and [Bridges](#)) to share a common sense of time. [Precision Time Protocol \(PTP\)](#) is used to maintain a common sense of time. The PTP profiles chosen to work with **TSN** are IEEE 802.1AS and IEEE 802.1ASRev.

Source:

<https://www.cisco.com/c/dam/en/us/solutions/collateral/industry-solutions/white-paper-c11-738950.pdf>

From:

<https://www.omgwiki.org/dido/> - **DIDO Wiki**

Permanent link:

https://www.omgwiki.org/dido/doku.php?id=dido:public:ra:xapend:xapend.a_glossary:t:tsn&rev=1642259437

Last update: **2022/01/15 10:10**

