## Introduction

* **Concept Definition:** A Single Point of Truth is a design principle to store all the information about one specific topic into one entity. Any other entity retrieving or updating information on a specific topic should refer to that particular single point of Truth.
* **Concept Founder:** This concept is a [common practice in the system architecture design](https://web.archive.org/web/20221118115544/https:/en.wikipedia.org/wiki/Single_source_of_truth) and the specific founder of this name is unknown.
* **Concept Benefit:** This design principle minimizes the amount of misinformation and redundant information within a knowledge system.

## How to demonstrate it?

* Many people are involved in the process when organizing a complex event project.
* It is a good team design to let each person specialize in a specific domain.
* For example, someone knows everything about catering, someone knows everything about the show, someone knows everything about the tickets, etc.
* Having clear responsibilities means one can go to this person and ask him any questions about his domain. These persons are the Single Point of Truth in their domain.
* If the information gets updated, that person is either the first person to know or to be updated by others.
* The single point of Truth person can actively broadcast the information to all relevant people (= Push). He can also passively wait for people to ask him about the latest status (= Pull).

## Where can it be applied?

* **Knowledge Database:** In big organizations, valuable information such as past project experiences, market analysis, company strategy, or project management often needs to be stored, updated, and shared. Most of the time, this information are stored in a [decentralized](https://web.archive.org/web/20221118115544/https:/en.wikipedia.org/wiki/Decentralised_system)way, e.g., on a personal hard drive, in the cloud, or sometimes in people's mind. Making the knowledge database accessible to all colleagues is a huge advantage. Turning information from personal drives to the business platform transforms invisible information into documented information. Now it can be passed to the next employee, even if the previous employee is no longer in the company. This is why the single source of Truth is often a document or platform since documents can persist much longer in time than a person. On top of that, if a document accepts attributions and updates by others, it becomes a valuable source. Typical knowledge databases are [Wikipedia](https://web.archive.org/web/20221118115544/https:/www.wikipedia.org/)for general knowledge and [IMDB](https://web.archive.org/web/20221118115544/https:/imdb.com/)for movie domain knowledge.
* **System Design:** The single source of Truth is originally an architecture design principle for creating multi-entity systems, that collaborate together. It allows data to be shared and used across different systems and manages the correct information all in one place.
* **Household Storage:** People tend to forget things due to bad management. If all things are stored in one place in the house, then searching for each item will be much faster, if they are all stored decentralized. For example, all keys are stored close to the main door, all tools are stored together in the garage. It is much easier to remember one place.

## Why does it exist?

* **Reduces complexity:** This design principle exists because it can manage complex relations in a multi-agent environment. This design avoids having N-to-N relations between the entities and replaces it with a 1-to-N relation.
* **Minimizes searching time:** Another advantage is that each entity only needs to contact a Single Source of Truth to retrieve and update information. This saves a lot of search time for people accusing the information.
* **All-in-one:** Every relevant information is in one place. It can be updated, modified, or deleted in one spot. This reference can be shared easily.

## How do I benefit from it?

* **Do**: Store information of the same class in one space to improve the searchability and management of that class. Standardize the medium where the information is stored and make it as simple as possible. For example, store all presentations in PDF, and all finance calculations in excel. Strictly execute the principle to achieve good usability of the stored information.
* **Don‘t:** Do not use the Single source of truth principle if the source cannot be protected. It will become a “[Single source of Failure](https://web.archive.org/web/20221118115544/https:/en.wikipedia.org/wiki/Single_point_of_failure)“ which is an [anti-pattern](https://web.archive.org/web/20221118115544/https:/en.wikipedia.org/wiki/Anti-pattern) for design. A Single Source of Truth is an important but vulnerable part of a system (e.g. banking system for our society, and the security door for a house). Rely on the Single Source of Truth only if security, and robustness can be assured in the first place (e.g. bank is safe and the security door can not be tricked).