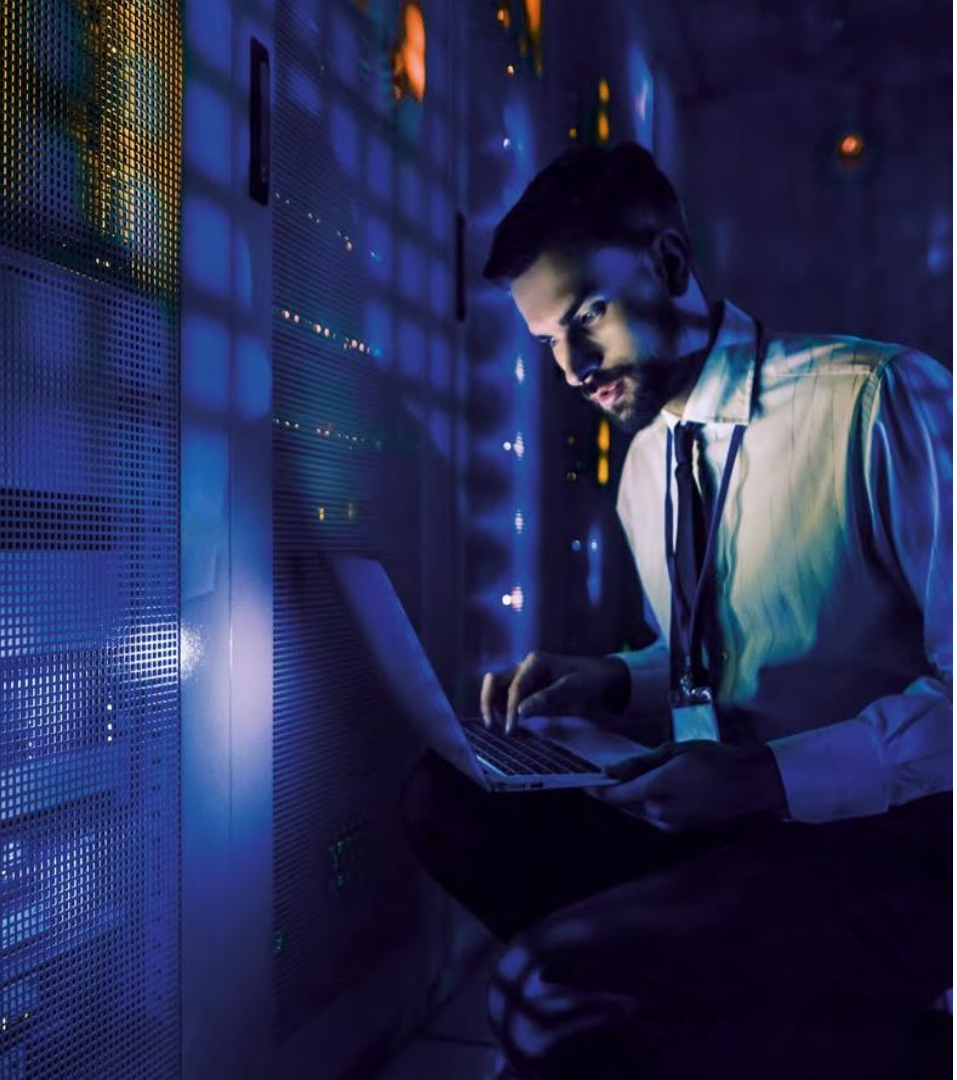
Empowering designers to Build a Greener & more Sustainable Data Center





Eliminating downtime

Along with increasing **DTC complexity** and rising demand comes an **increased risk of downtime** and associated costs.

Outages are relatively common and costly, but they **can also be anticipated** and avoided.

Power issues are the single **biggest cause of outage** making it essential to deploy solutions that guarantee maximum power availability.



Eliminating downtime

Limit the impact of a critical power fault during and after short circuit



Luka GRAHEK
International Specification Engineer



Bastian GSELL
Product Marketing Manager - STS

socomec
Innovative Power Solutions



Limit the impact of a critical power fault during and after short circuit thanks to Static Transfer Systems

Islanding	Continuity
STOP ALL FAULT PROPAGATION	ANALYSE THE FAULT BEFORE TRANSFER

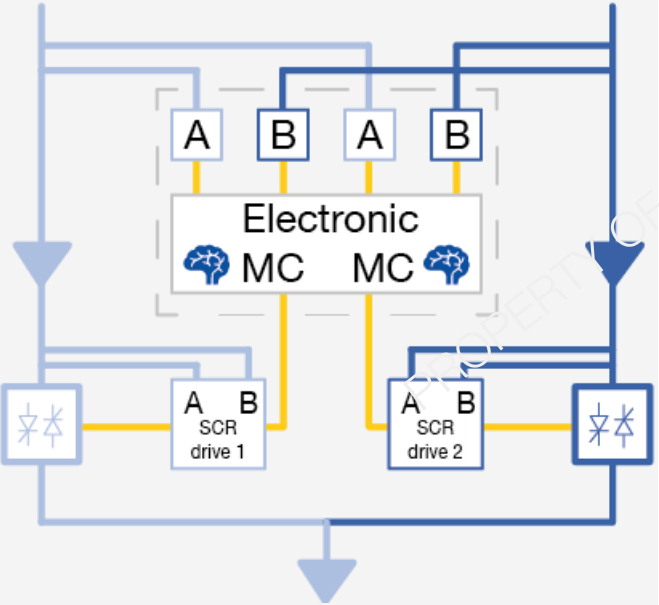
The implementation of a **Static Transfer System (STS)** in an installation ensures the **continuity of service to sensitive loads** for critical applications.

In the event of a fault or loss of source, it **provides power continuity** by switching from one source to another **without any blackout.**

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Standards and definitions for Static Transfer Systems (STS)

Socomec STS design with high MTBCF



62310 Static Transfer Systems

*System that transfers a load, by **static means**, between a preferred source and an alternate source.*

1008S Solid-State Transfer Switches

A device that automatically transfers a common load from a normal supply to an alternate supply in the event of failure of the normal supply, and automatically returns the load to the normal supply when the normal supply is restored.

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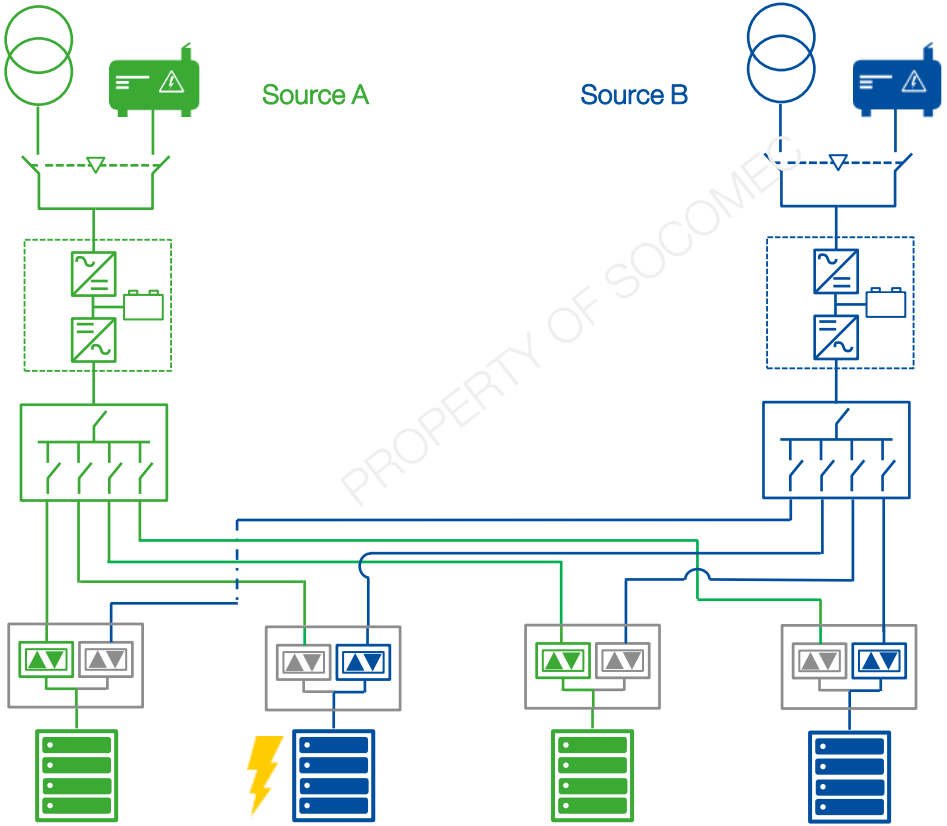
Benefits of using STS in Data centers

- Reduces vulnerability and avoids the risk of losing supply to load
- Bring redundancy closer to the load
- Enhance your infrastructure by enabling redundant architecture
- Locking out downstream faults
- Protection against upstream faults

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Example of a 2N installation

with a **fault downstream** of the STS



The Isc threshold must be adapted according to the installation

Two main parameters to consider:

- Sources short circuit capability
- Max. RMS current and crest factor on the load

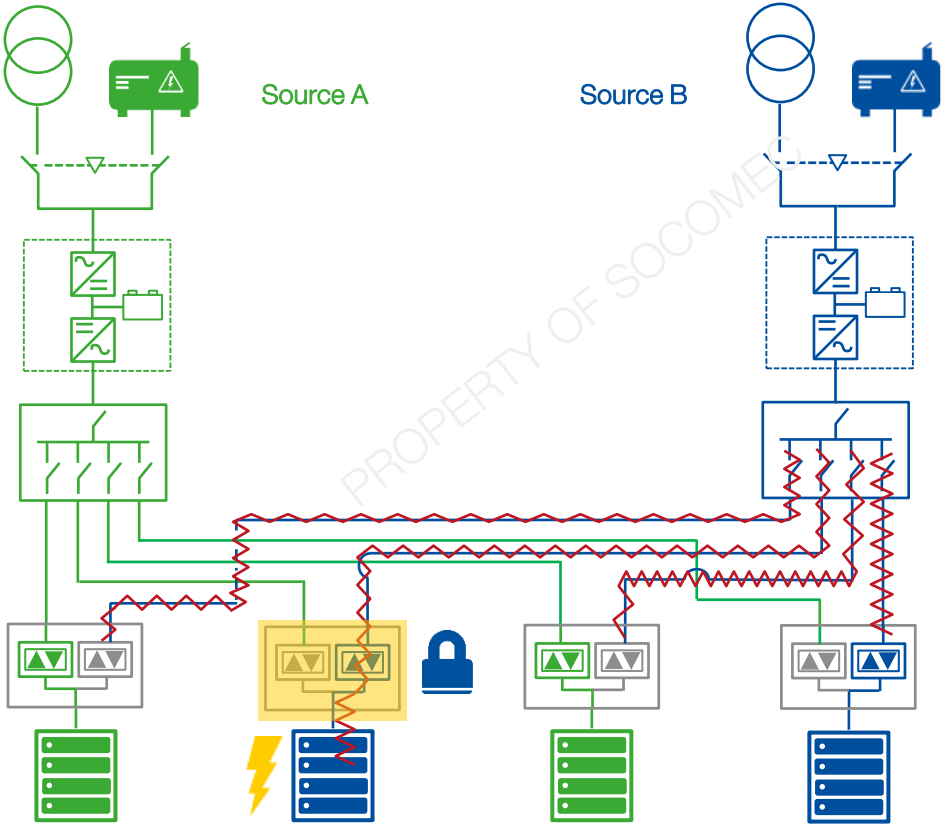
STS will lock and block fault propagation:

For a fault **downstream** of the STS the fault islanding strategy consists **locking** out the **fault** and **transferring** all the other loads to the **healthy source** without overlapping the sources.

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Example of a 2N installation

with a **fault downstream** of the STS



STS with

downstream Short Circuit

- To forbid propagation of failure on one source to the other
- Locking the position of STS

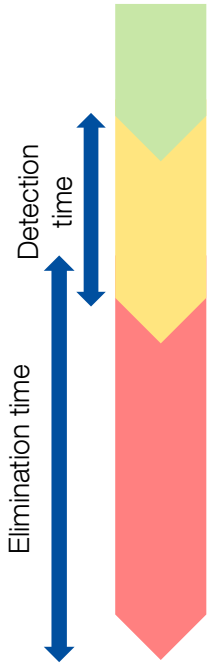
Source B

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Example of a 2N installation

with a **fault downstream** of the STS

Sequence in case of downstream short circuit



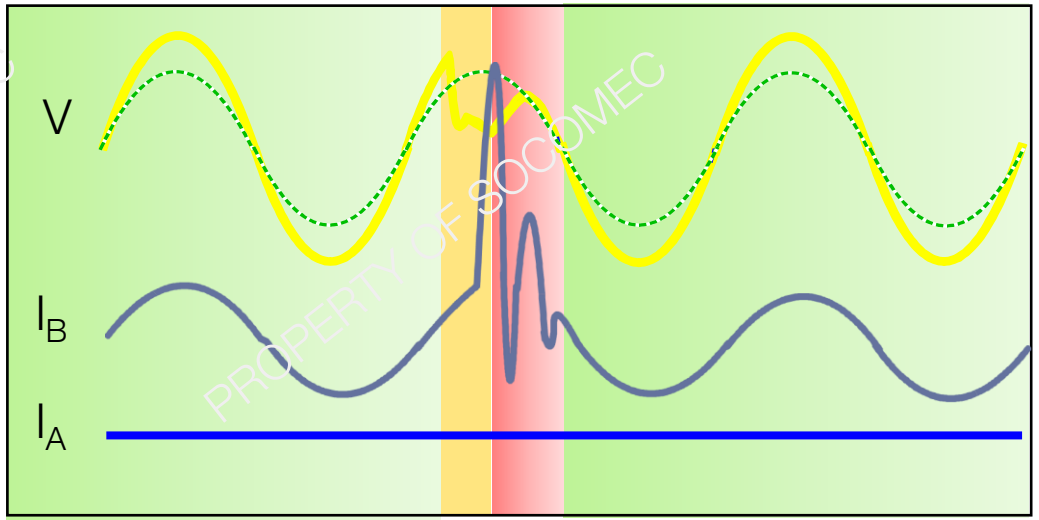
Normal functioning on source B

Output Voltage Detection

Confirmation

Downstream Isc detected

Still functioning on source B

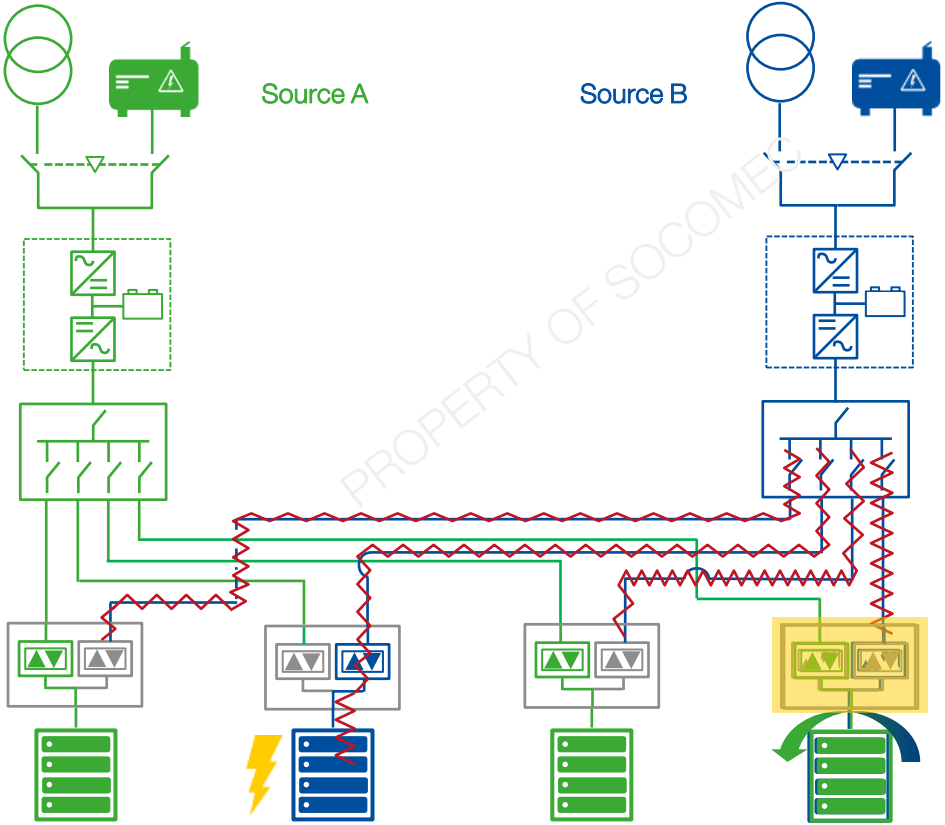


1. Downstream protection clears the fault STS back to Normal operation + Alarm to Acknowledge
2. Downstream protection does not clear the fault **STS stays Locked**

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Example of a 2N installation

with a **fault downstream** of the STS



STS without

downstream Short Circuit

- STS immediately transfer their load to alternative source in fast open transition

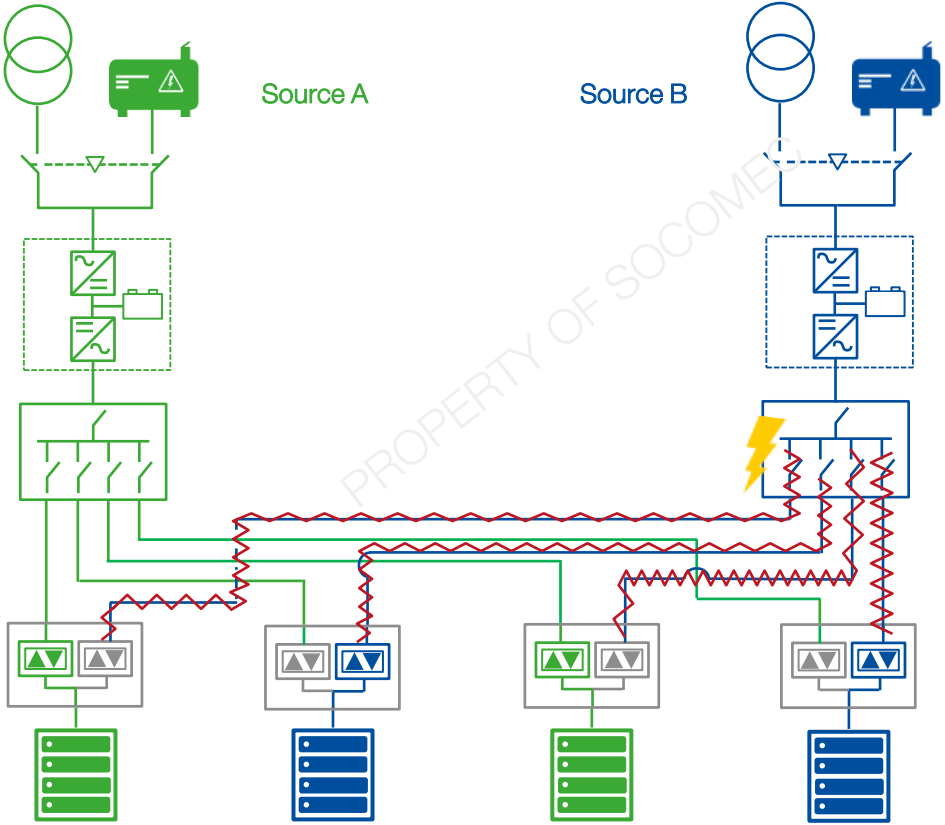


- Transfer is done without overlap of the phases

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Example of a 2N installation

managing fault **upstream** of the STS



STS will guarantee the continuity of supply by:

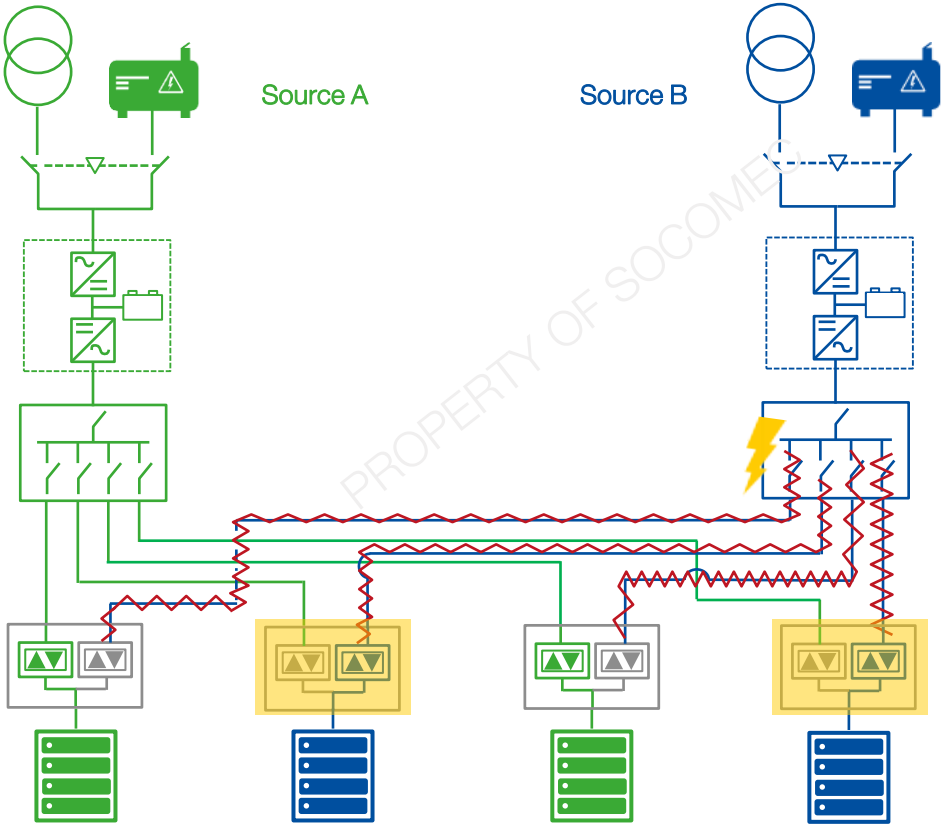
For a fault **upstream** of the STS the fault islanding strategy consists of transferring all the loads to the healthy source **without overlapping the sources**.

A fault occurs upstream of an STS supplied by **source B** causing a voltage disturbance on the distribution of **source B**.

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Example of a 2N installation

managing fault **upstream** of the STS



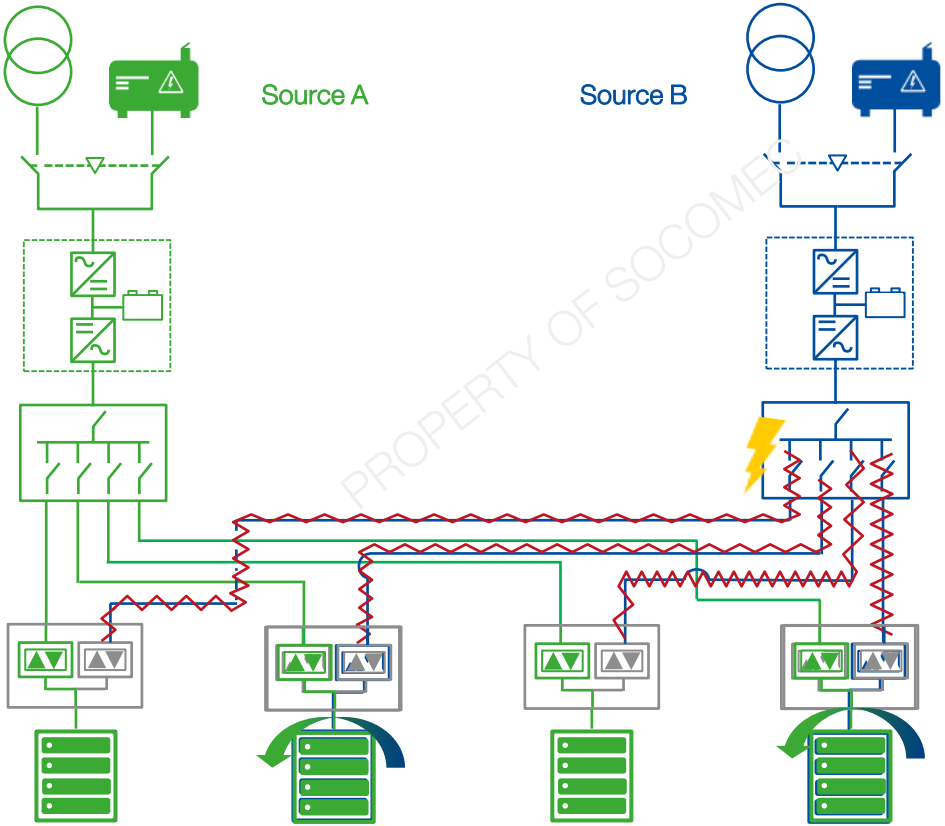
STS with a fault upstream

- All STS powered by source B immediately transfer their load to source A without phase overlap
- STS powered by source A stay powered by source A and provide alarm that alternative source is not available

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Example of a 2N installation

managing fault **upstream** of the STS



Transfer of loads
to the healthy source

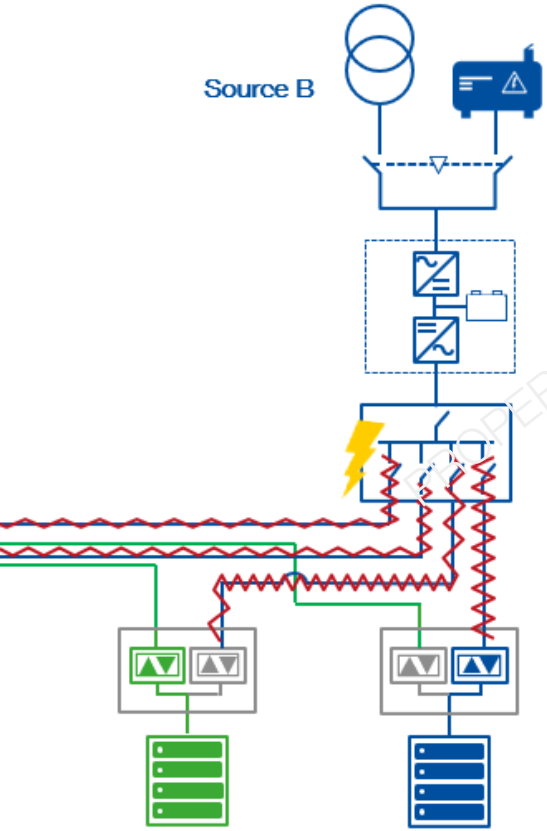


- The fault has been locked on source B
- Loads are powered by source A

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Example of a 2N installation

managing fault **upstream** of the STS



No failure propagation

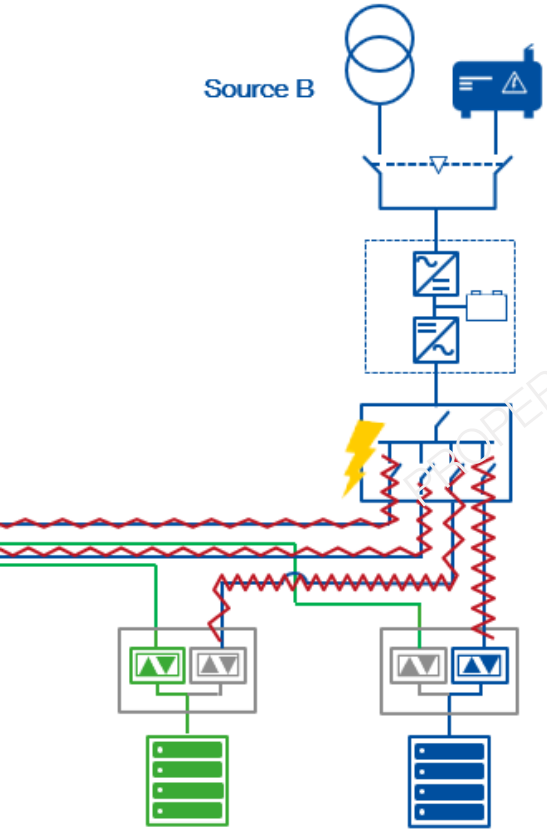
Increase the availability and eliminate downtime

- Wait for the effective opening of the SCR on the **departing** source (Break)
- Before closing the SCR on the **destination** source (Make)
- And this should be done **Phase by Phase**

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Example of a 2N installation

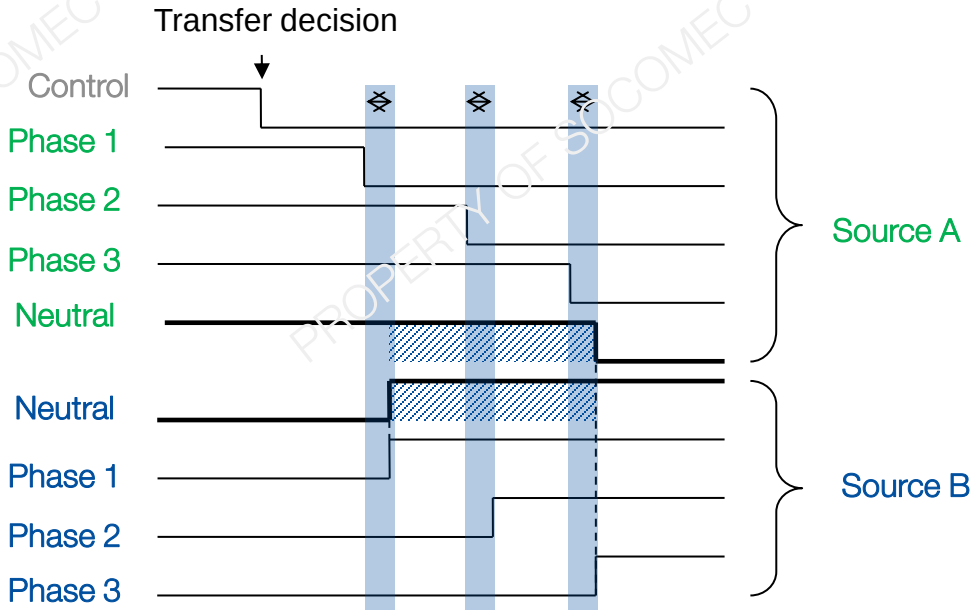
managing fault **upstream** of the STS - logic explanation



Break Before Make

Done phase by phase

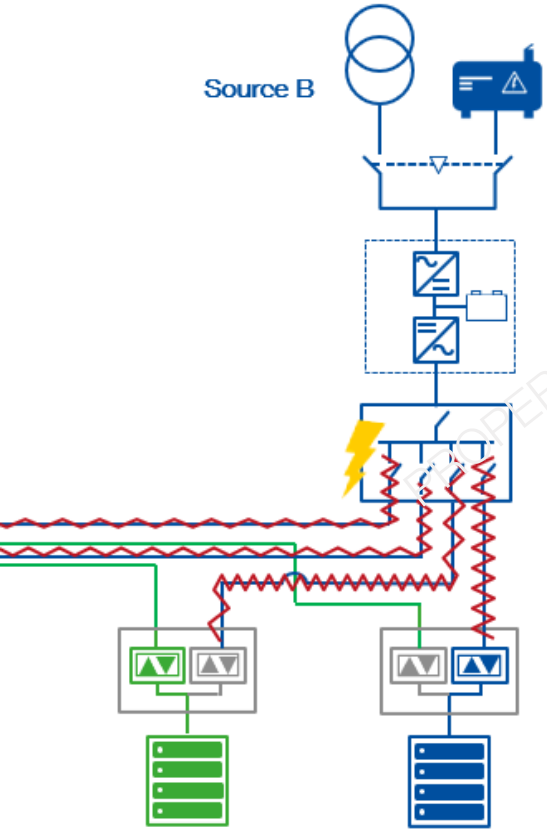
Short delay to ensure BBM transfer



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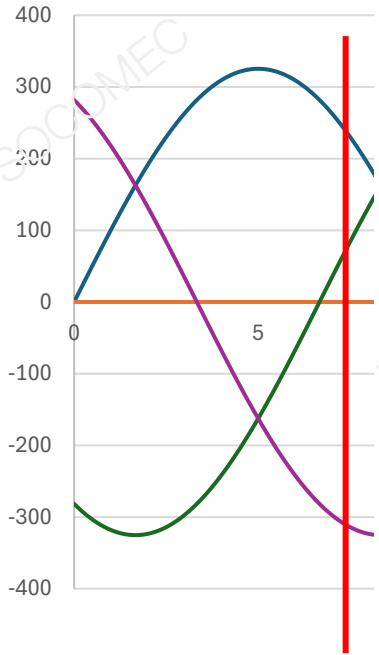
Example of a 2N installation

managing fault **upstream** of the STS

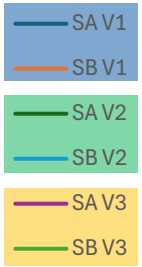


Break Before Make

Full separation between sources



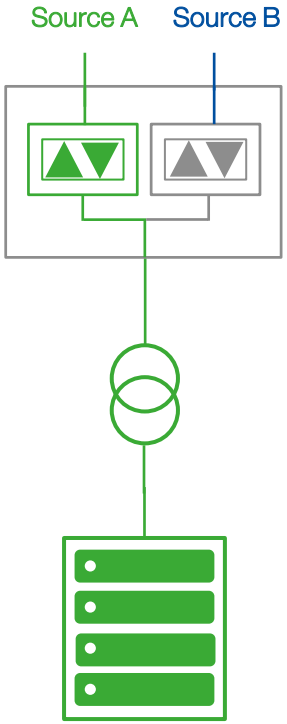
Transfer decision



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Transfer with the downstream transformer

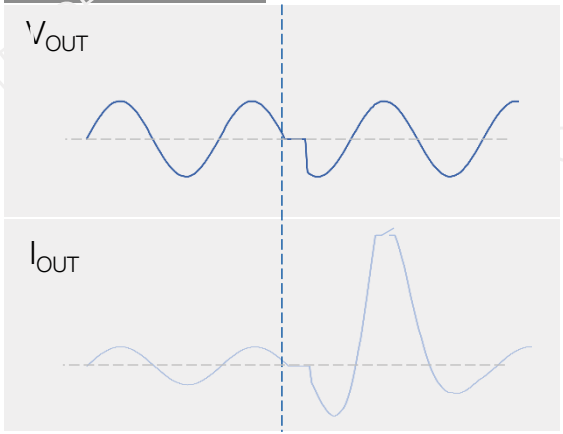
ATSM – Advanced Transformer switching management



Risk without ATSM

- Easily more than 10xIn transient current
- Upstream protection tripping

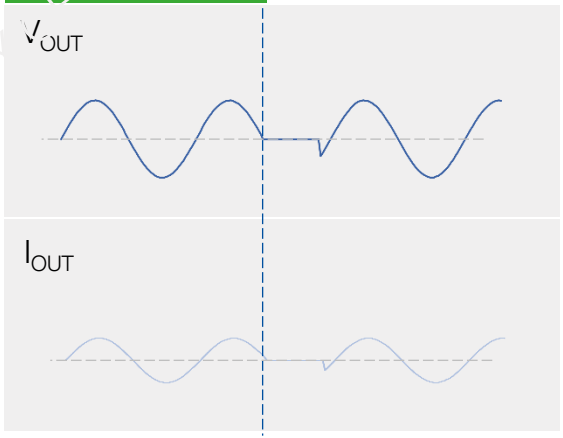
ATSM OFF



Protection provided by ATSM

- No transient current
- No risk of tripping the upstream protection

ATSM ON



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The Socomec solution

STATYS Cabinet
from 200 to 1600 A



STATYS Catcher
1800 A



STATYS Chassis
from 200 to 1800 A



STATYS Rack
From 32 to 100 A

The STATYS range of Static Transfer Systems (STS)

- Unparalleled power availability
- Firmware that makes the difference
- Fits all electrical installations

thank you SO much!