WHY?
• Secure reliable and interoperable bidirectional communication.
• Compatible with DAS and ATO.

WHAT?
• Data layer independent of content.
• Three different supported communication architectures.
• Two architectures well defined, one under construction.

BENEFITS
• SFERA extends ATO over ETCS beyond Baseline 3+ Full Supervision and remains compatible.
• Same IM server can be used for the three architectures.
• Architecture can be chosen based on preference of RU.

REMARKS
• All three communications can be used for DAS and ATO.

BACK OFFICE TO BACK OFFICE

WHAT?
• Back office communication between IM and RU.
• Communication with device on train guaranteed by RU.

BENEFITS?
• Integrates with existing devices and data feeds of RU.
• On ground IM-RU link (with high reliability).
• Easy to reach good performance.
• Applicable to class B trains and lines.

REMARKS
• RU Server may be offered as a service by third party.

USING ATO OVER ETCS

WHAT?
• Communication via ATO-TS (according to ATO over ETCS standards).
• With trains and lines equipped with ETCS Baseline 3+ Full Supervision.

BENEFITS?
• Performance guaranteed by ETCS.
• Same SFERA dataset usable for trackside data preparation.

REMARKS
• SFERA can be translated to the binary Subset 126.

DIRECT COMMUNICATION

WHAT?
• Device on train communicates with IM responsible for area where train is running.

BENEFITS?
• No ground RU-servers needed.
• Public communication infrastructure may be used.
• Applicable to class B trains and lines.

REMARKS
• Not identified yet.
• Challenging in keeping interoperability.
• Implementation can be different for handheld and built-in devices.