

The cover features a background with a stylized world map and a nautical chart. The chart includes labels such as 'Nebenell', 'Ragensand', 'FLR', and '1017'. The design is divided into three vertical color bands: yellow on the left, red in the middle, and blue on the right. A blue header bar at the top right contains the website address 'www.sevencs.com'. A yellow footer bar at the bottom left contains the text 'THE SOURCE OF ECDIS'. A blue footer bar at the bottom right contains the '7C SevenCs' logo.

S-63 IHO Data Protection Scheme Explained

Friedhelm Moggert-Kägeler,
SevenCs GmbH

HYDRO 2010,
2 - 5 November 2010,
Rostock, Germany

www.sevencs.com

THE SOURCE OF ECDIS

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S-63 IHO Data Protection Scheme Background

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IHO S-63 - Background

- Protection of ENC information.
- Edition 1.1 was released in March 2008.
- Based on Primar protection scheme.
- Adopted as IHO standard in 2001.

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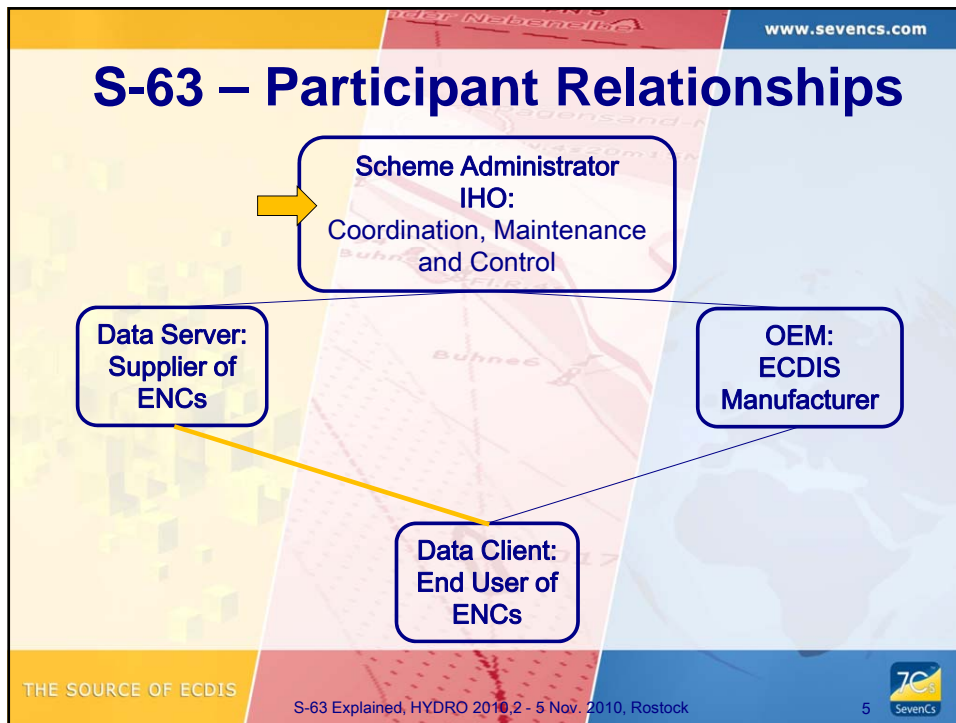
IHO S-63 - Background

- Piracy Protection:
 - To prevent unauthorised use of data.
- Selective Access:
 - To restrict access according to a licensing scheme.
- Authentication:
 - Assurance that data is from approved sources.

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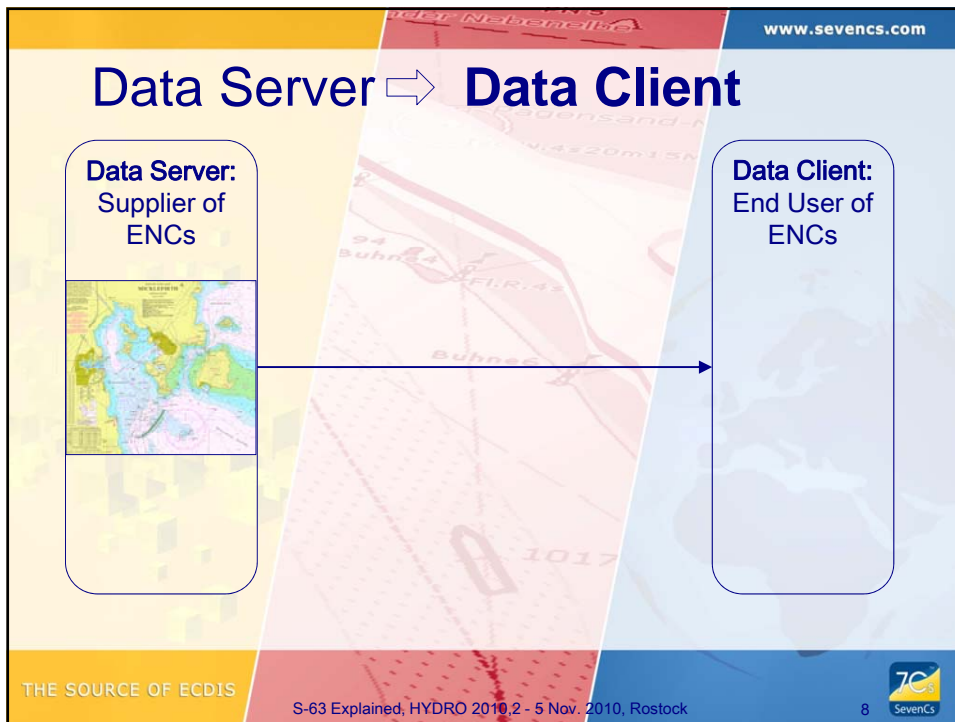
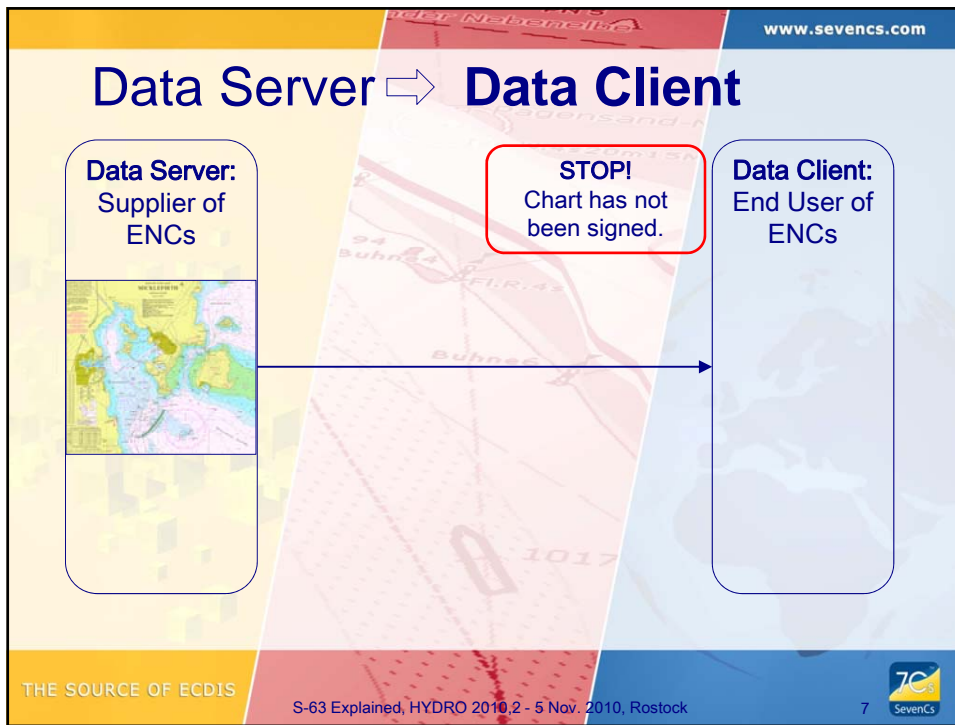
Data Server → Data Client

- **End User** gets ENC from ENC supplier.
- Supplier must be trustworthy.
- Means to verify ENC suppliers identity.
- Proof of suppliers trustworthiness
 - Certification by „higher authority.“

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Data Server → Data Client

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GNSS-DERIVED POSITIONS
Positions derived from satellite navigation systems (e.g. GPS, GLONASS, Galileo, BeiDou) are normally referred to as GNSS positions. Such positions should be plotted directly on this chart.

REDDED DEPTHS
Depths shown are designated as redded and these levels will not be altered.

VE-TRAFFIC SERVICE
See and working details of the Visual Traffic Service (VTS) in the Notice to Mariners, Volume 6.

HAZARDOUS WRECK
Hazardous wrecks are protected under international law. Details are given in the Notice to Mariners, Note and Regulations.

NAVIGATION LIGHTS
See and working details of the Navigation Lights in the Notice to Mariners, Note and Regulations.

ISLAND FIRING RANGE
See and working details of the Island Firing Range in the Notice to Mariners, Note and Regulations.

Depths are shown in metres unless otherwise stated. Heights above Chart Datum are shown in metres unless otherwise stated. Positions are given in degrees and minutes unless otherwise stated. Linear measurements are in metres unless otherwise stated.

INTERNATIONAL CHART SERIES

S-63: Data Server uses Private Key to sign ENC

Data Client: End User of ENCs

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Data Server → Data Client

Data Server: Supplier of ENCs

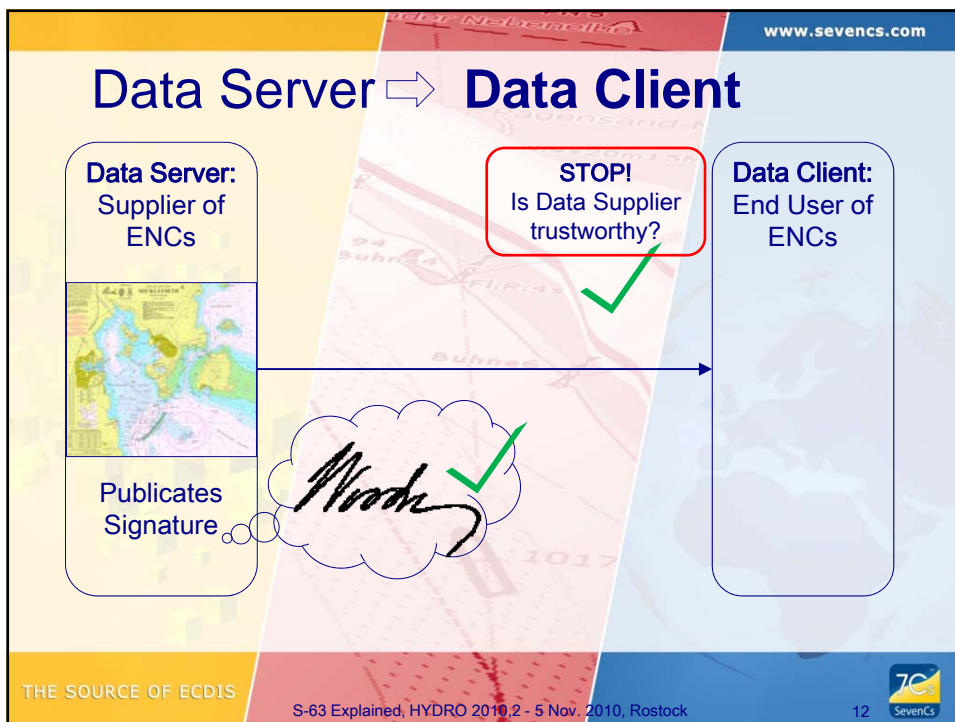
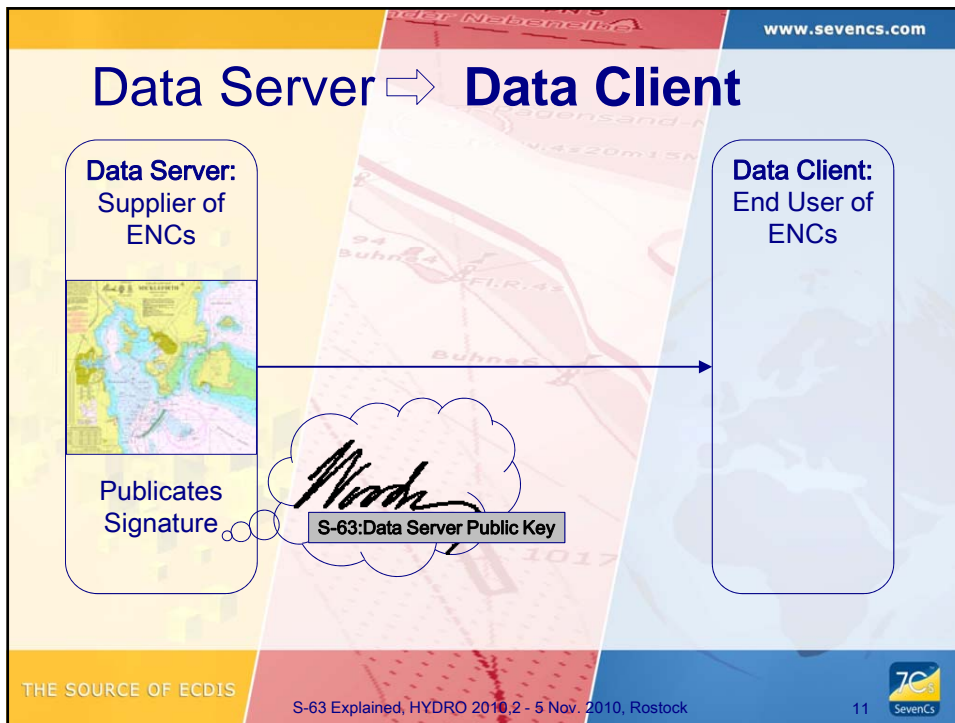
STOP! Signature has not been verified.

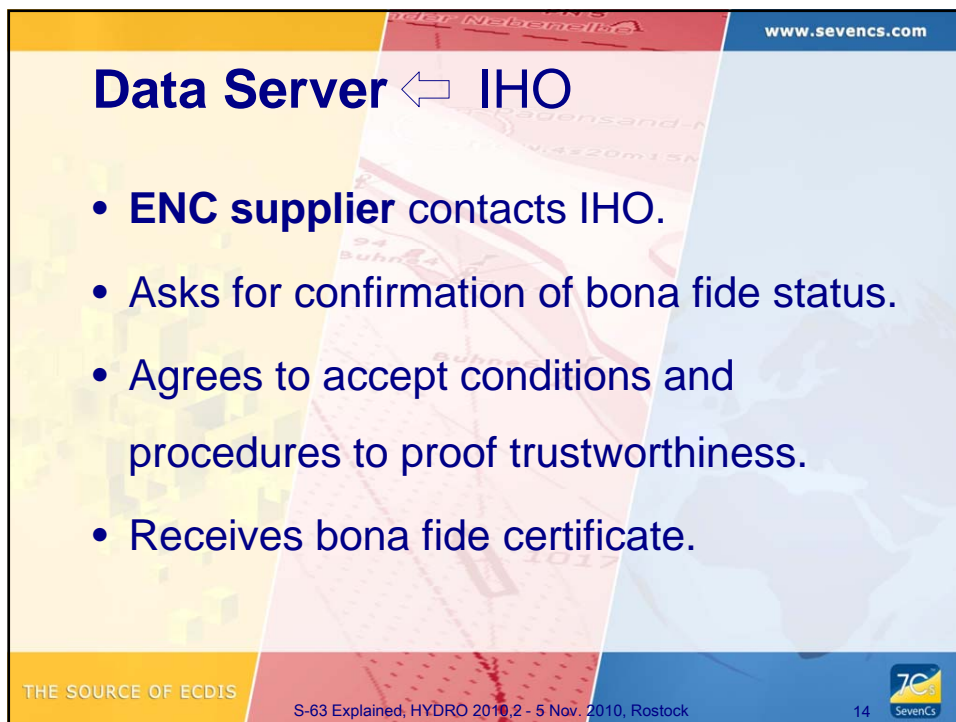
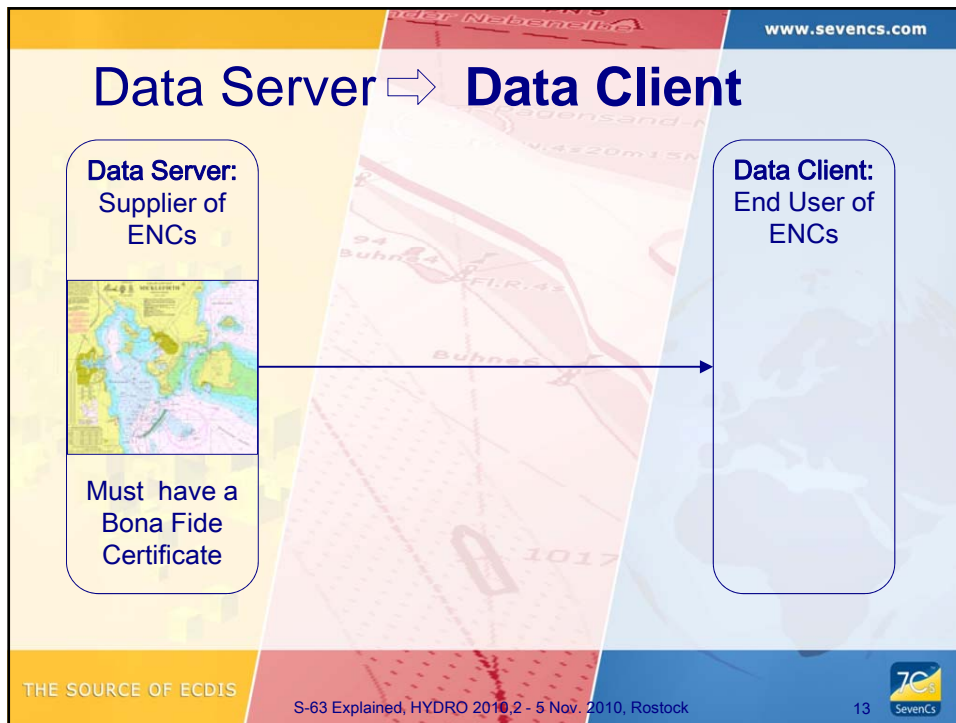
Data Client: End User of ENCs

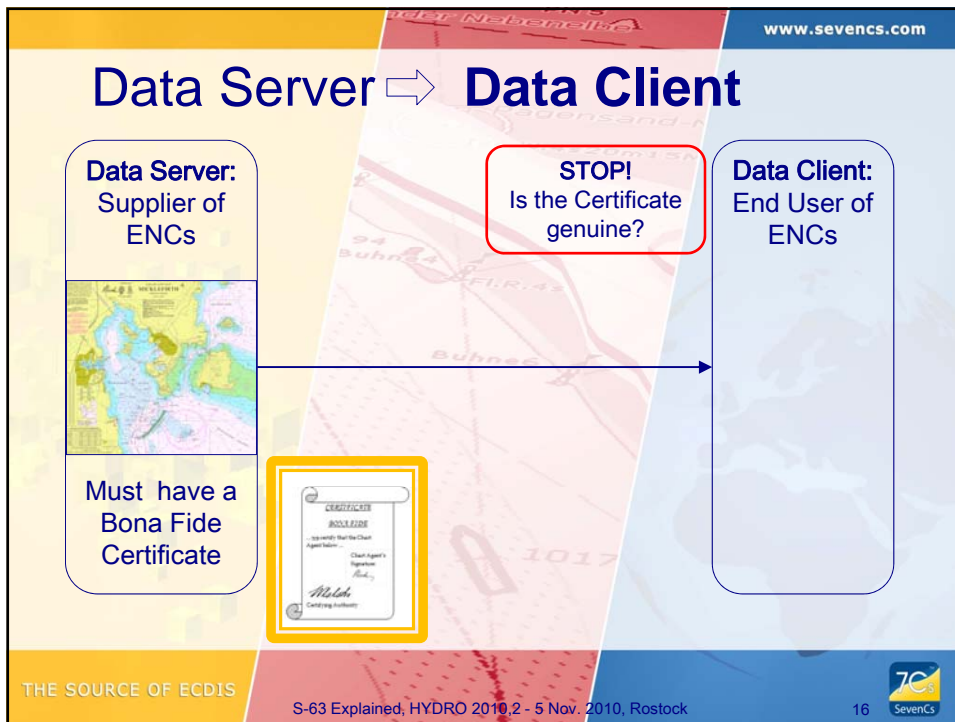
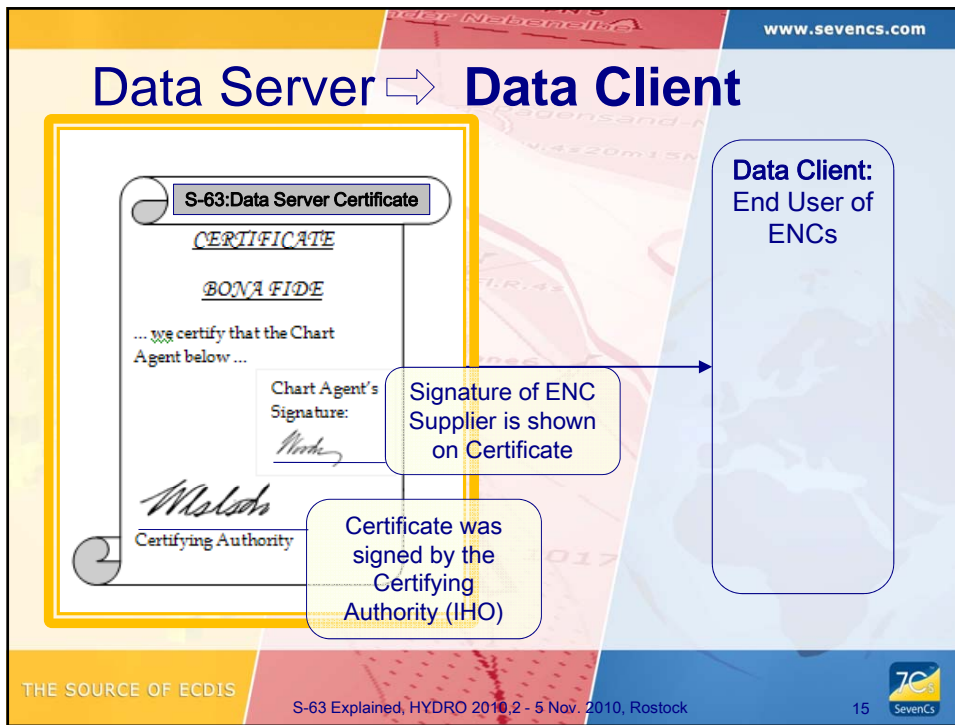
THE SOURCE OF ECDIS

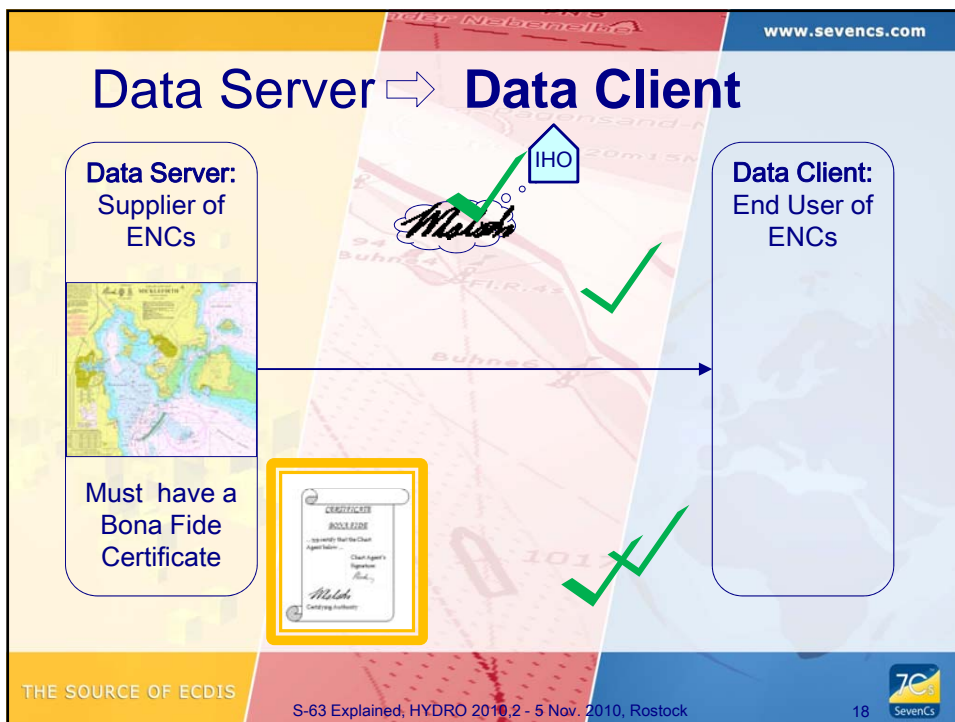
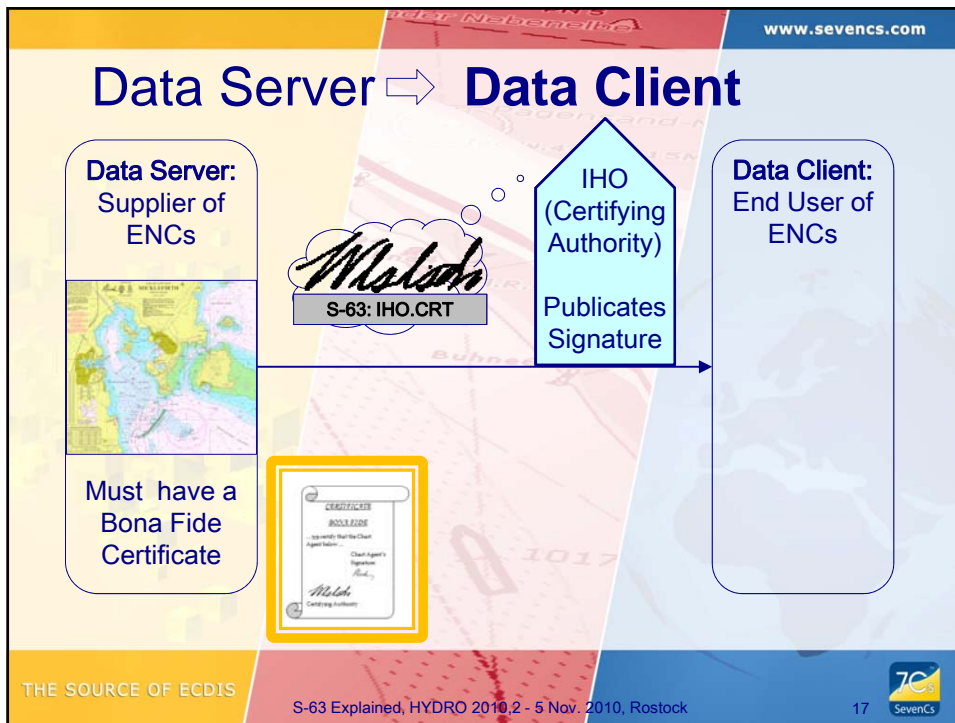
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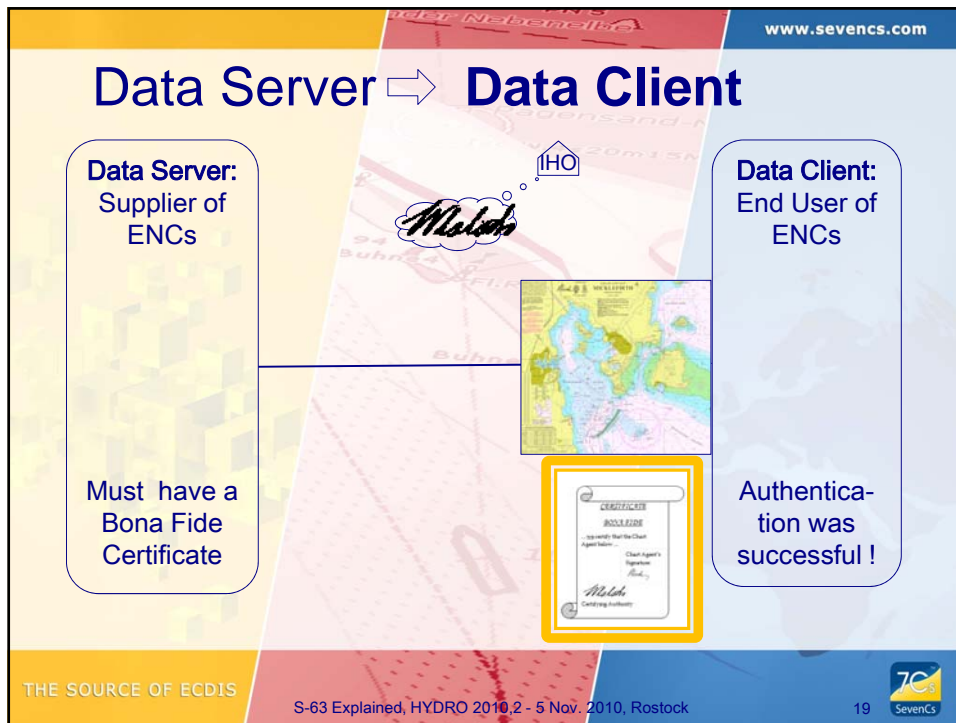
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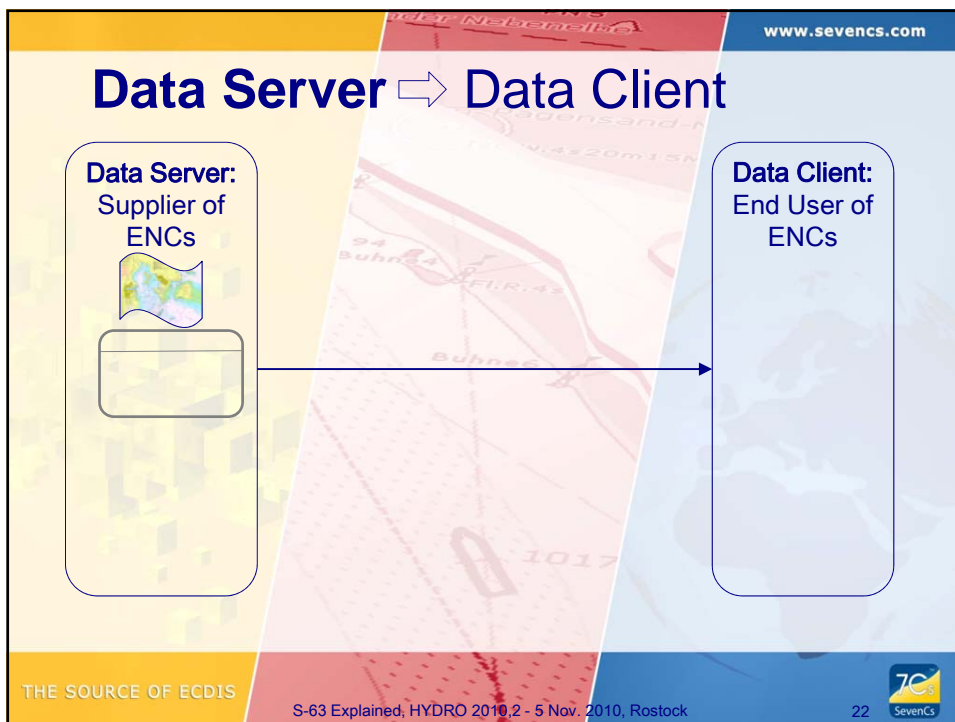
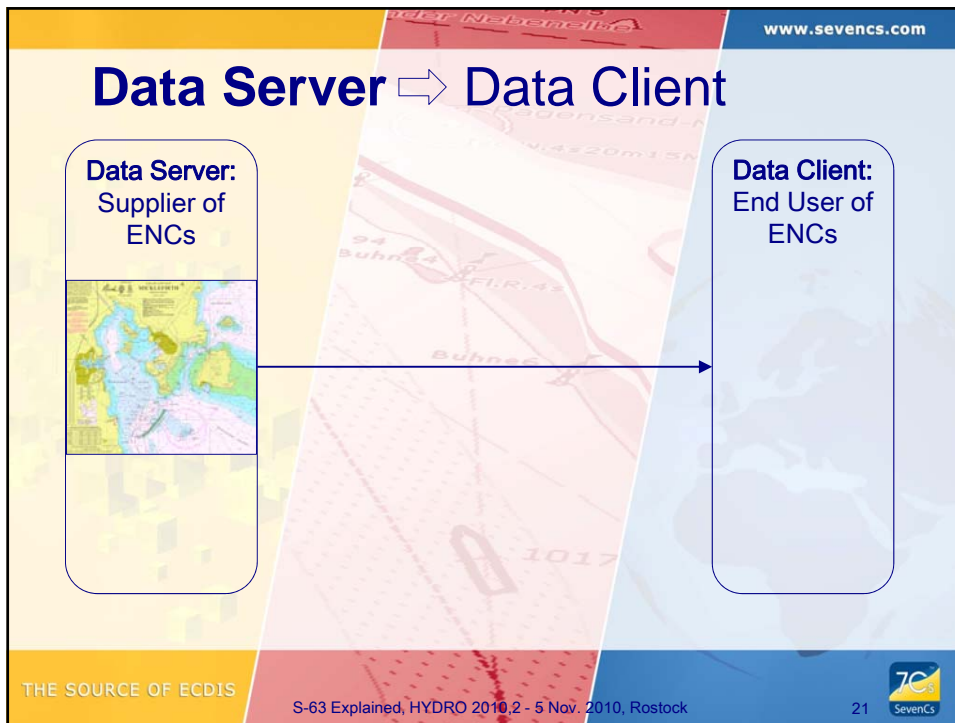


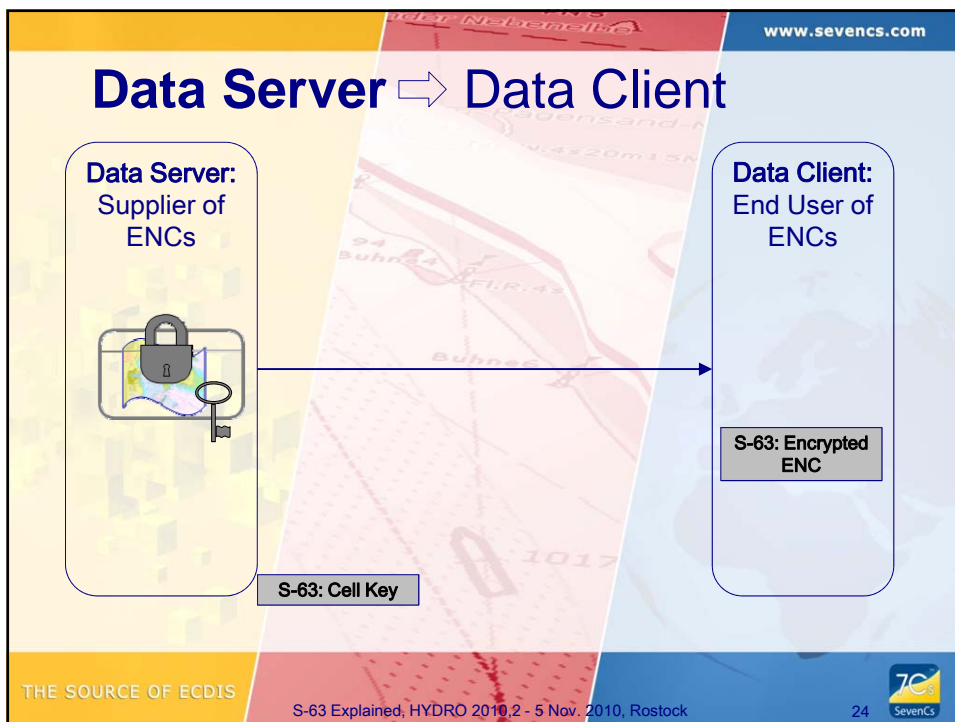
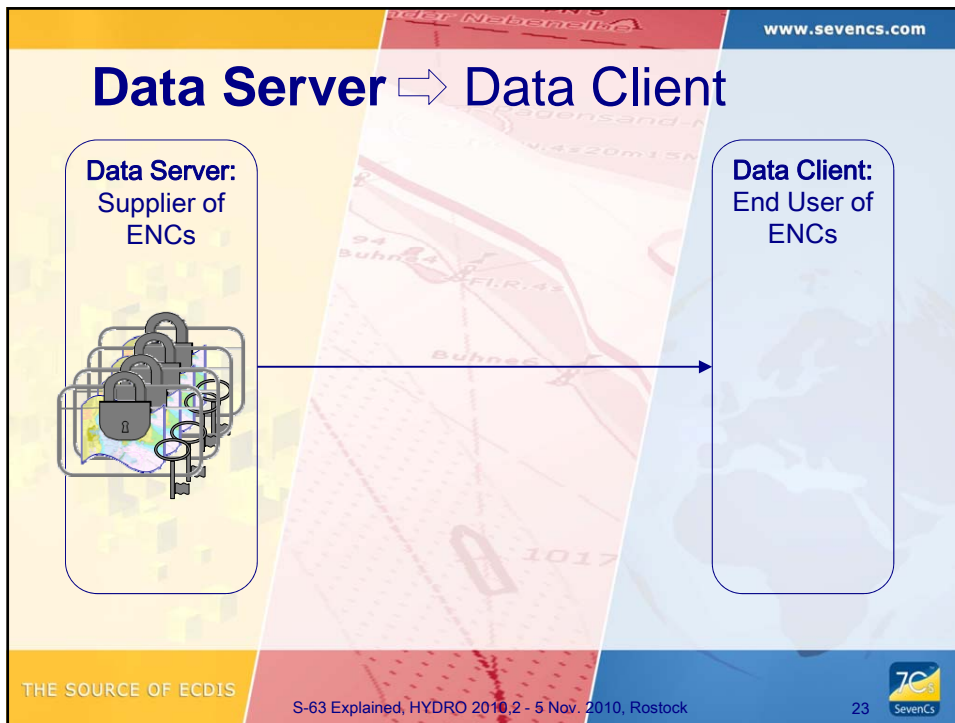


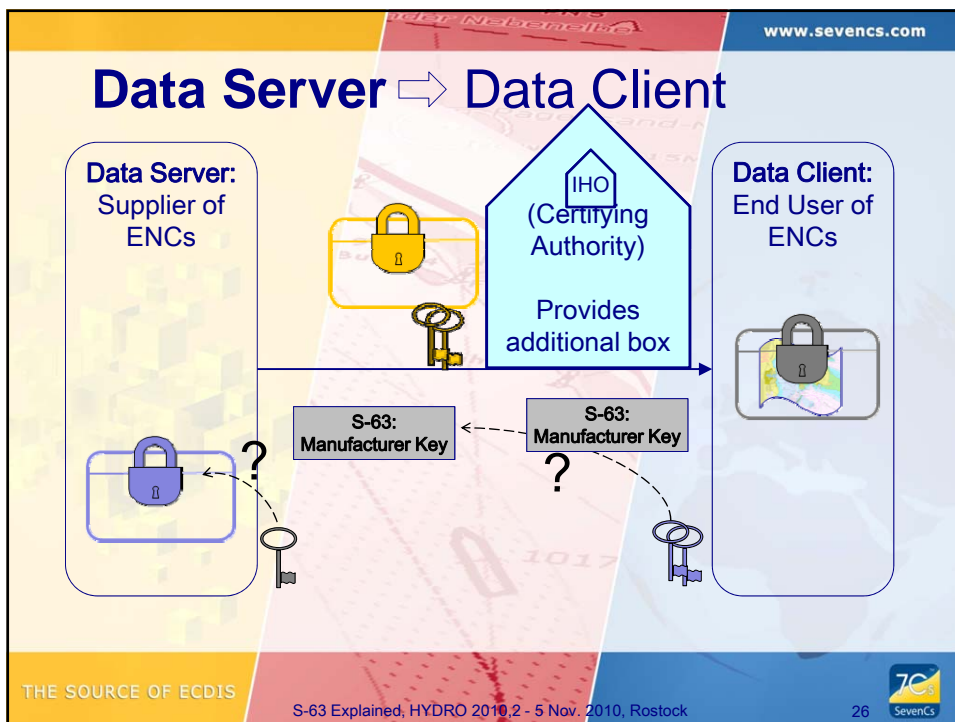
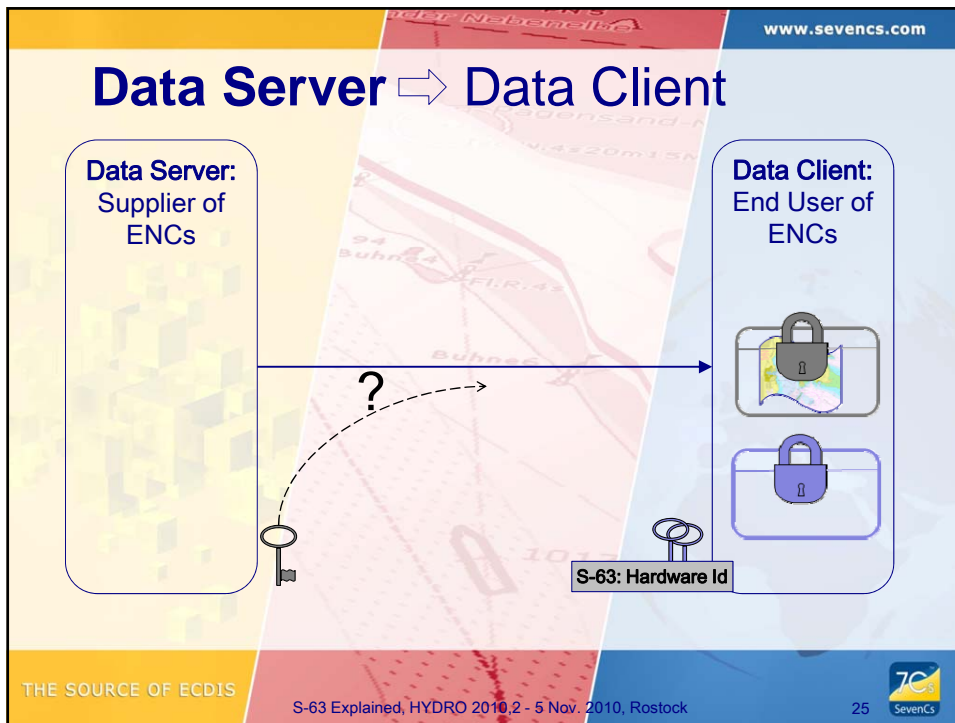


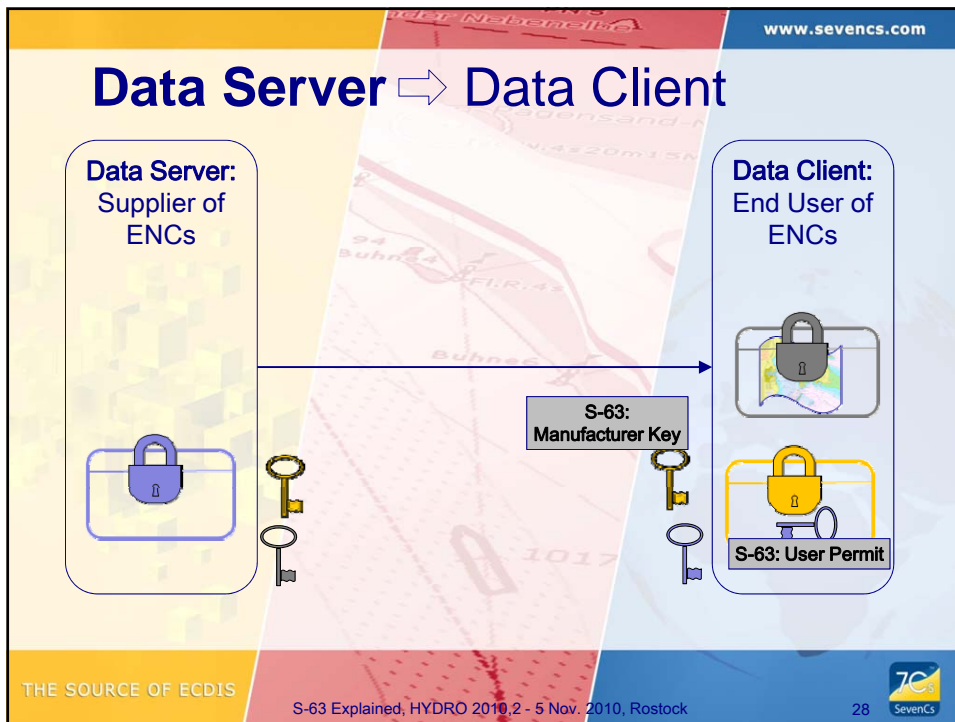
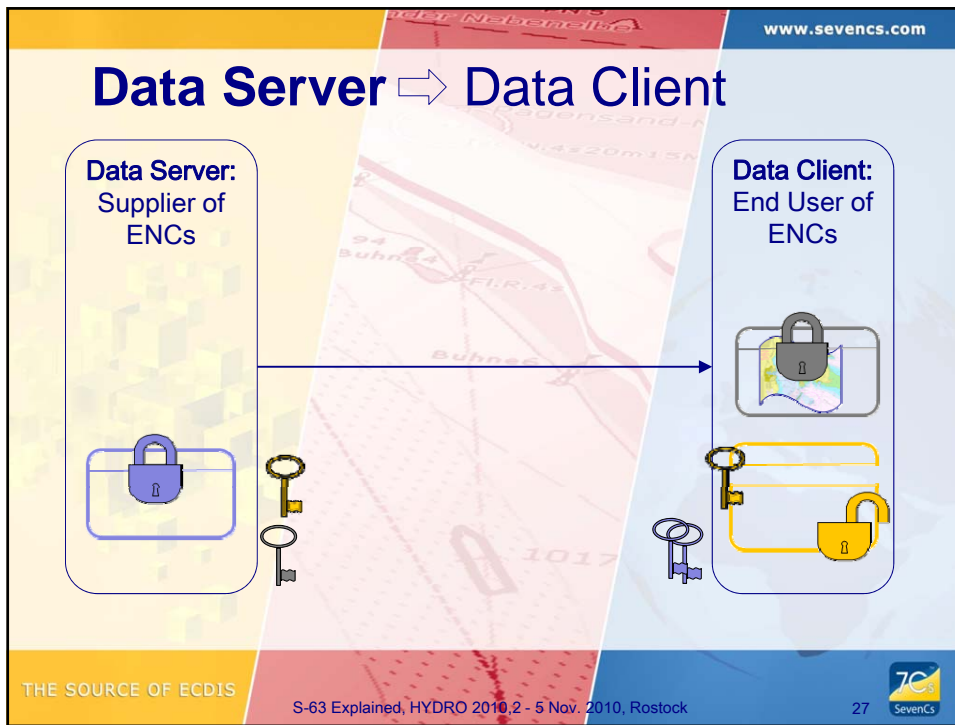


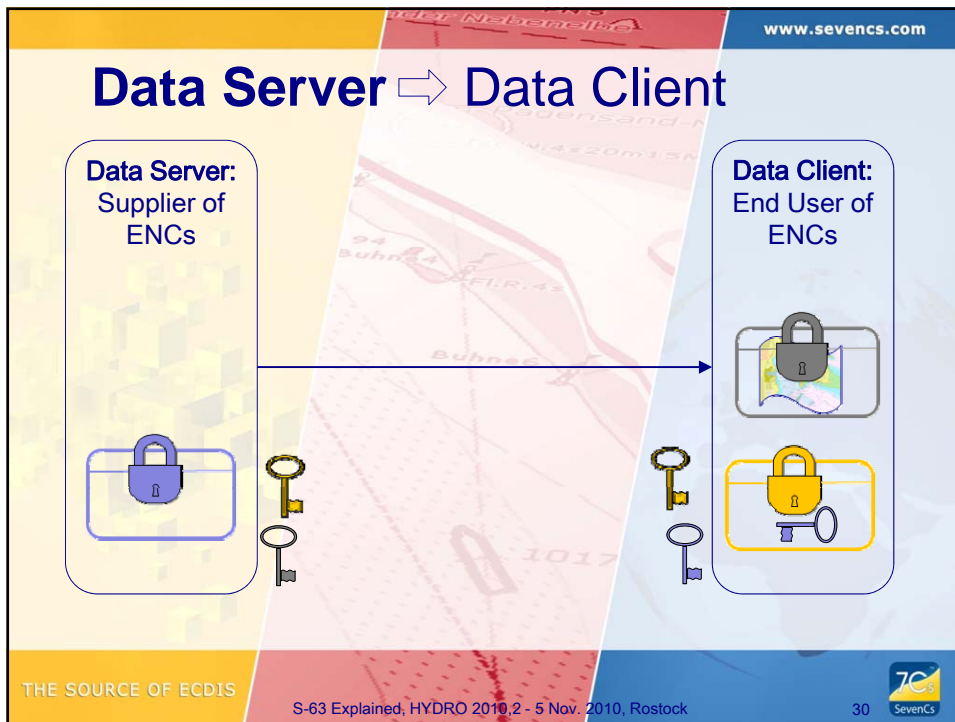
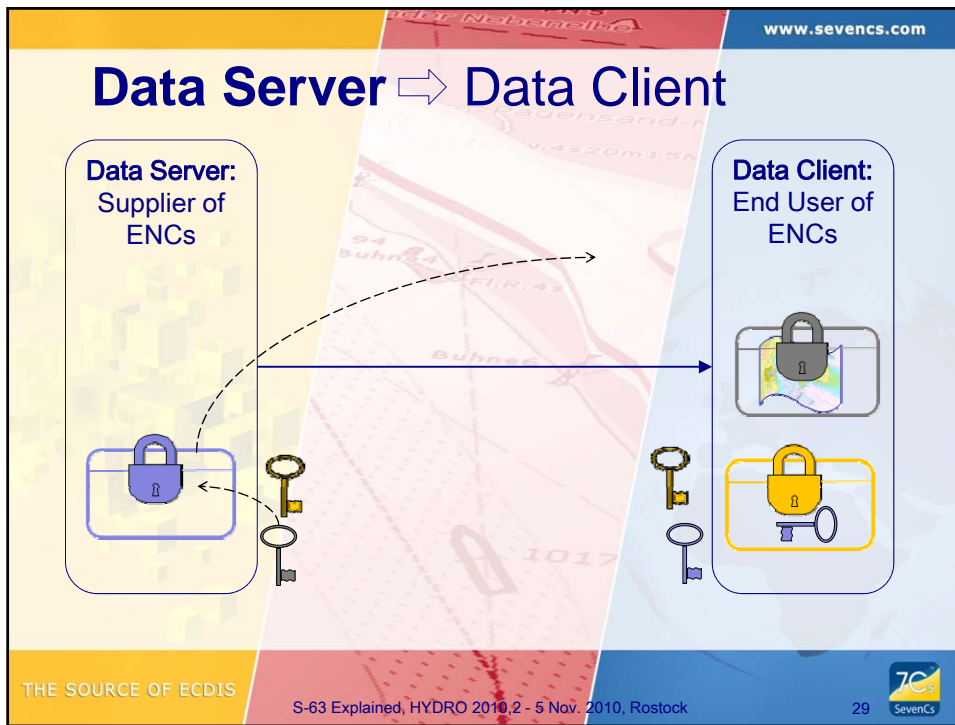
- www.sevencs.com
- ## Data Server → Data Client
- **ENC supplier** provides ENC data.
 - Has an interest to protect ENC data:
 - Prevent unauthorised use.
 - Selective access (for licensed end users.)
 - ENC Supplier encrypts ENC information.
 - Provides decryption keys.
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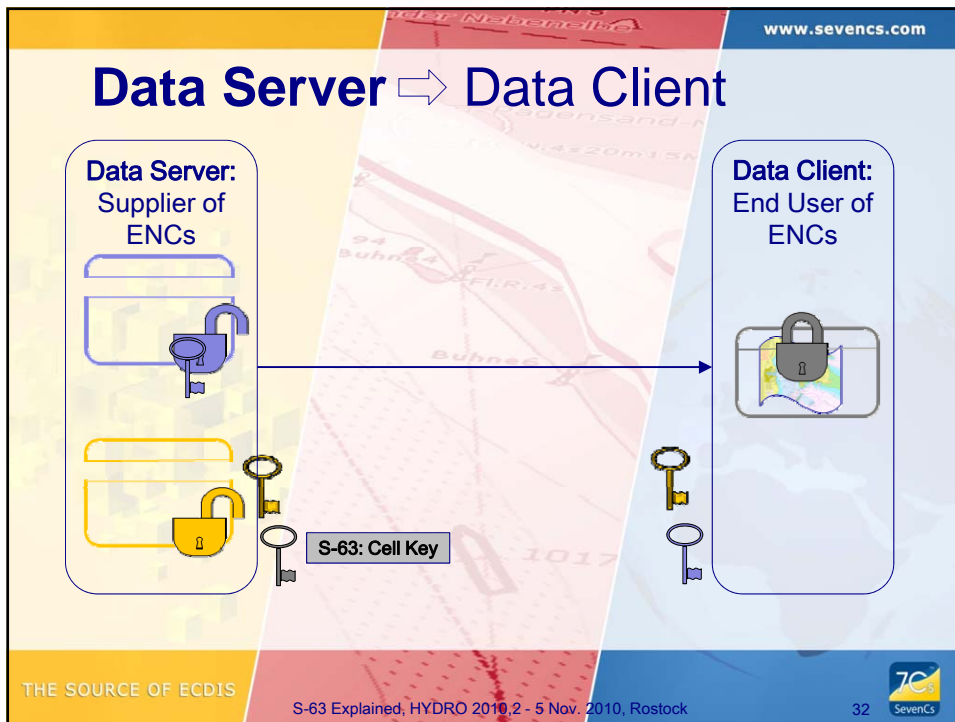
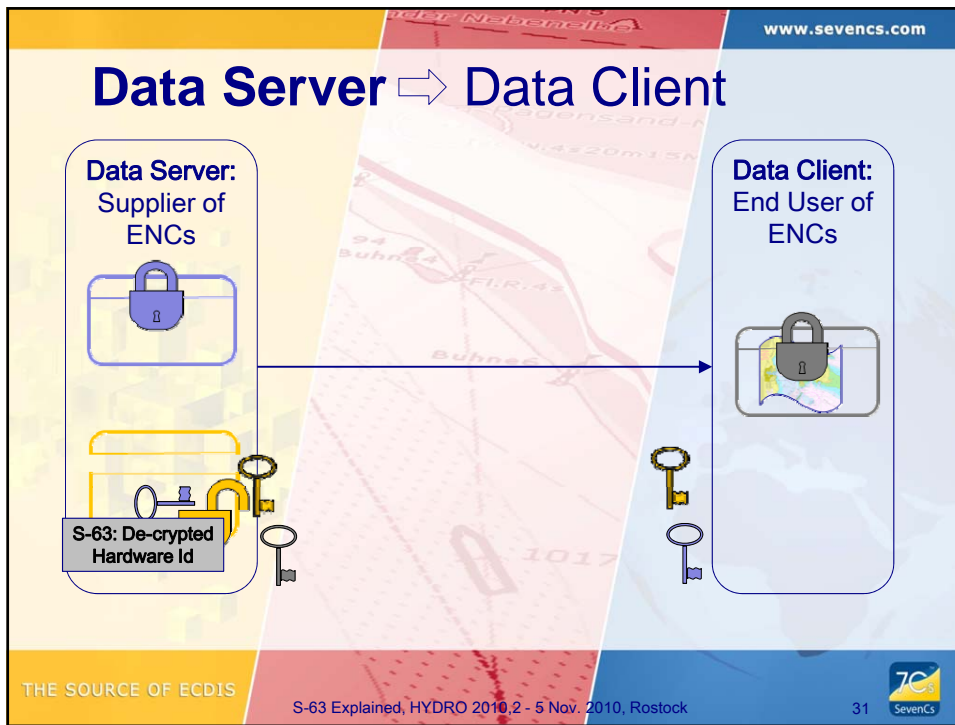


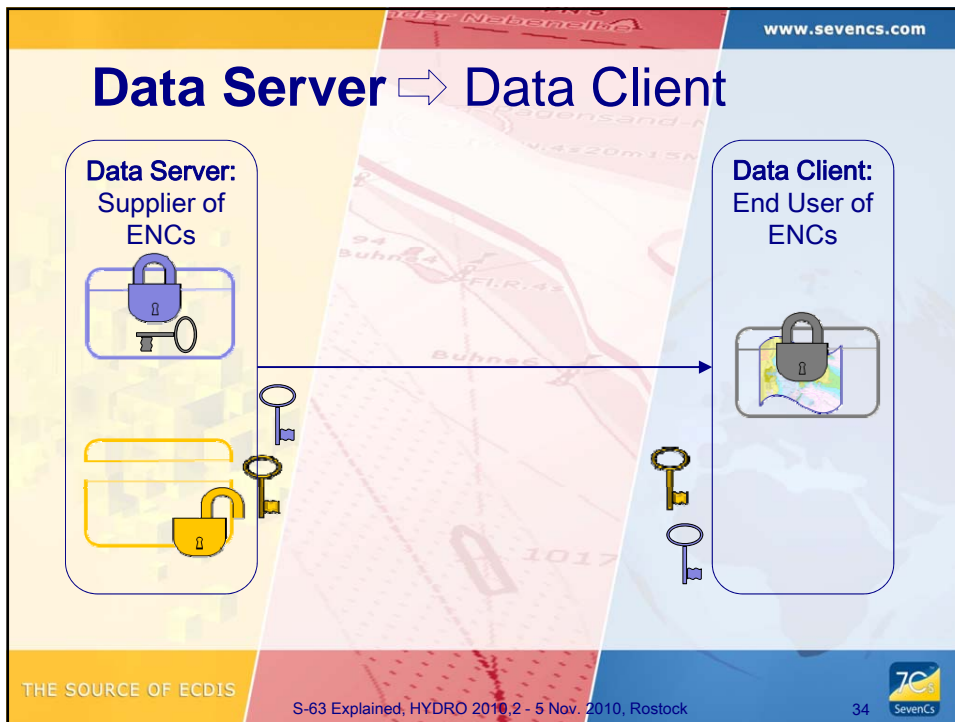
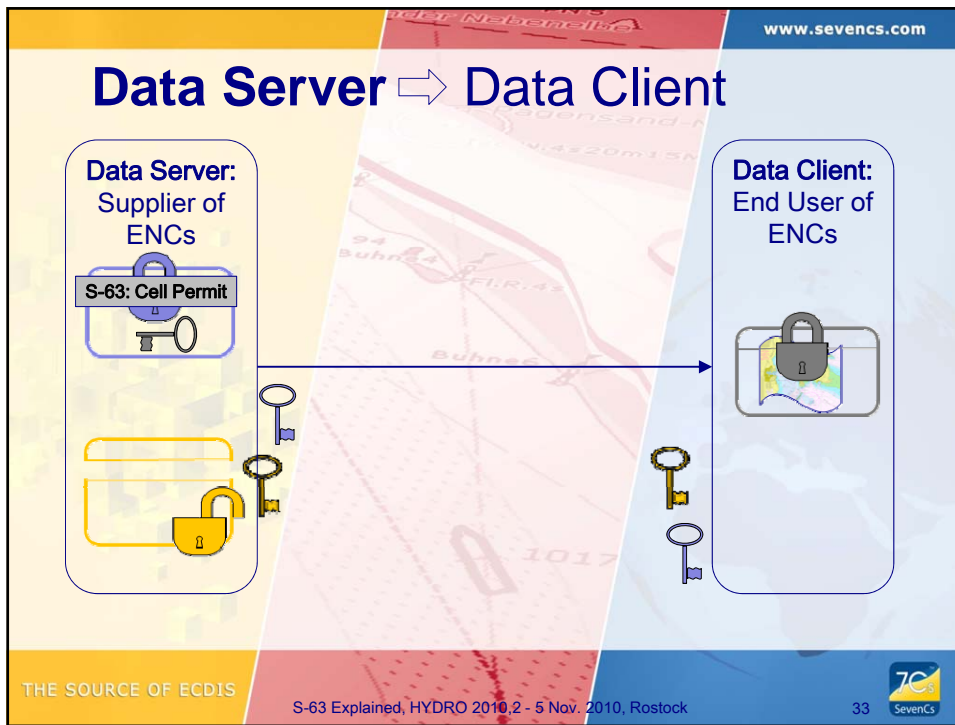


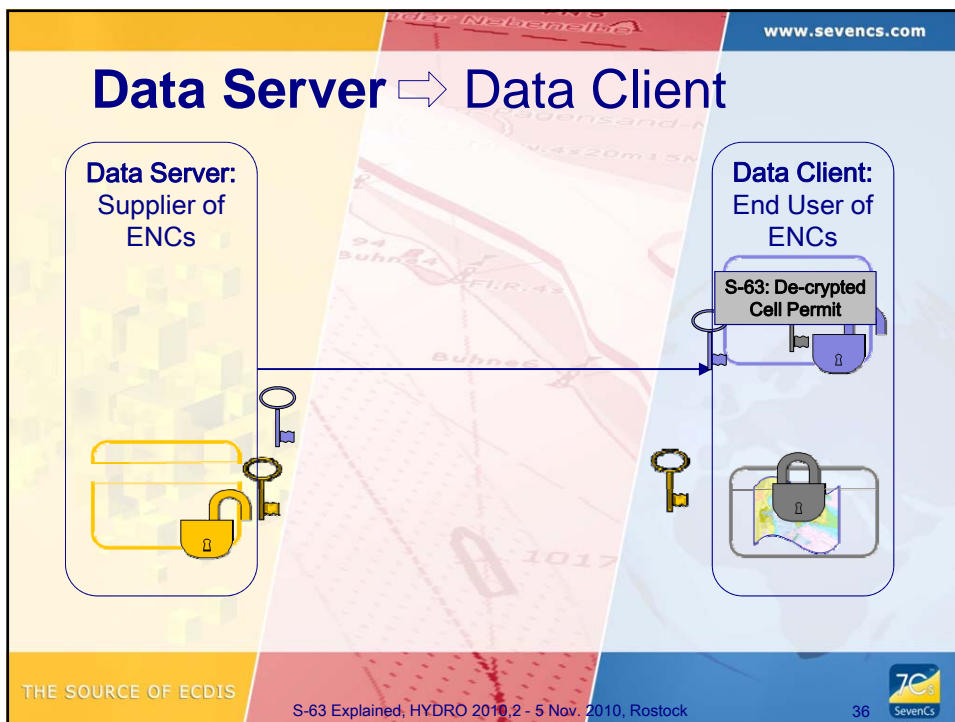
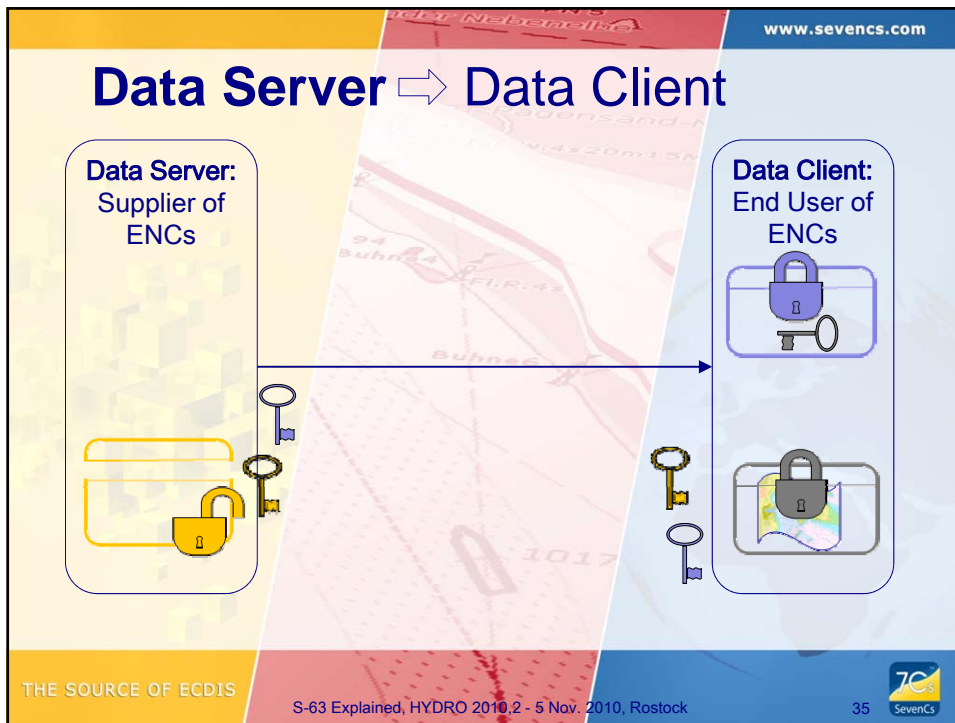


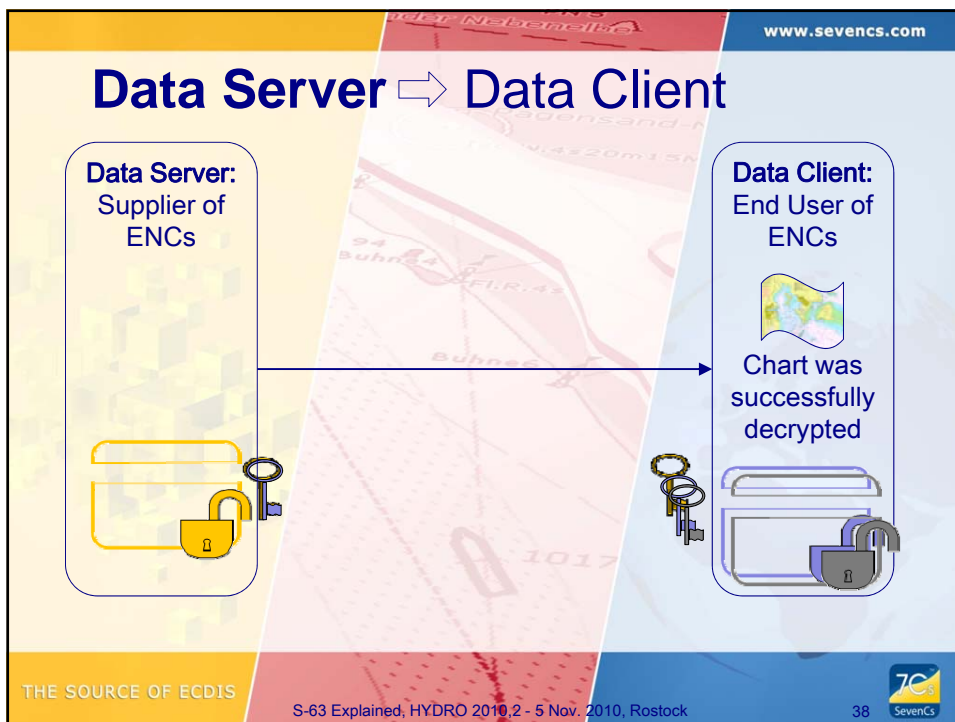
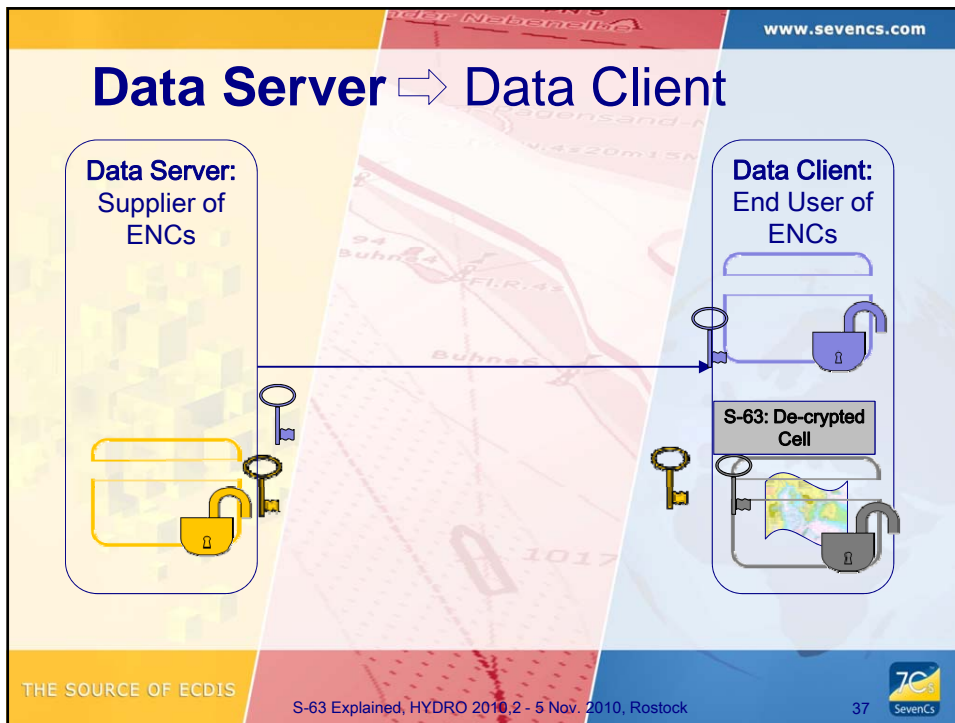












S-63 Protection - Summary

- ENC's are digitally signed to authenticate the data supplier (end user's interest.)
- ENC's are encrypted for copy protection reasons (ENC supplier's interest.)

S-63 Protection - Summary

- Signature creation and data encryption are independent.
- Different encryption methods.
- Both are based upon a hierarchical "encryption chain" with the IHO at the top.

**Thank you very much
for your attention!**

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