

# Spatial Data Infrastructure (GDI) at the Federal Maritime and Hydrographic Agency (BSH) *with a side glance to the CONTIS data model*



Workshop on data network building – October 16, 2013

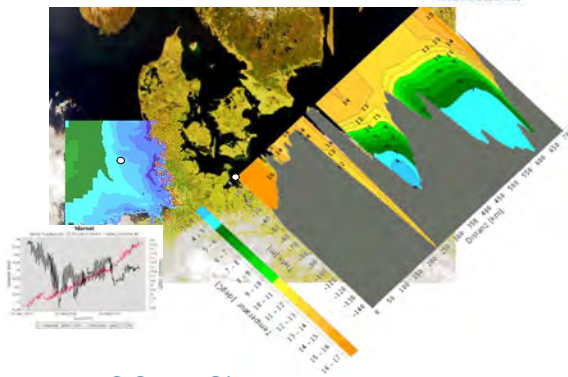
Jürgen Schulz-Ohlberg, BSH

## Agenda

GEO data infrastructure

### GDI-BSH

- Purpose and benefits
  - Data within
  - Operation principle
  - Data Access (examples)
  - Basic Architecture
  - Data model design (w/ focus on CONTIS)
- Minimum requirements for MSP



## Purpose and benefits

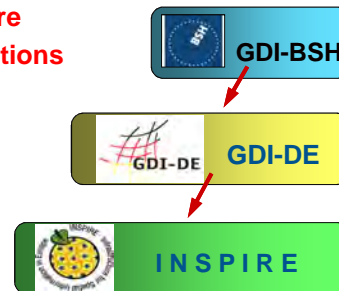
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### The GDI-BSH

- provides an **interdisciplinary access** to the spatiotemporal data of the BSH for internal and external users,
- is the central node of the **German Marine Data Infrastructure (MDI-DE)**,
- supplies the **German Spatial Data Infrastructure (GDI-DE)**, **INSPIRE** and other **reporting obligations** with data and metadata,
- makes spatial data available in the framework of the **freedom of information law** and the **environmental information regulation**.



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## Data within the GDI-BSH

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### Spatial base data



- Topographic data for the coastal zone
- Bathymetric data to describe the sea bottom
- Administrative data (national boundaries, sea areas etc.)

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## Data within the GDI-BSH

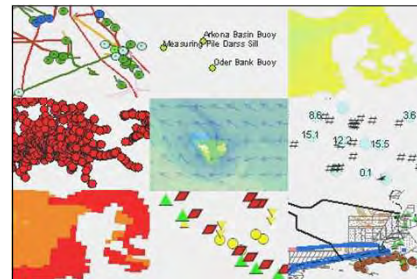
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- Oceanographic (water body)
- Chemical (water body, sea floor)
- Biological (water body, sea floor)
- Geological (sea floor)
- Geophysical (sea floor, magnetic field)
- Meteorological (sea areas)
- Hydrographic (estuaries, seas)
- Marine pollution monitoring
- Marine spatial planning
- ENC, traffic-networks and traffic-infrastructure

## Spatial subject data



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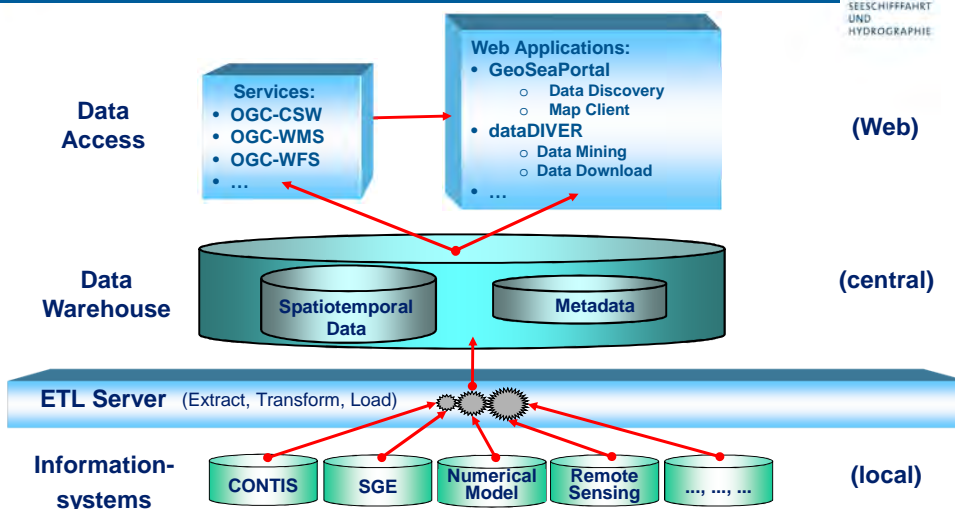
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## Operation principle

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## Data access (examples)

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OGC-compliant Software

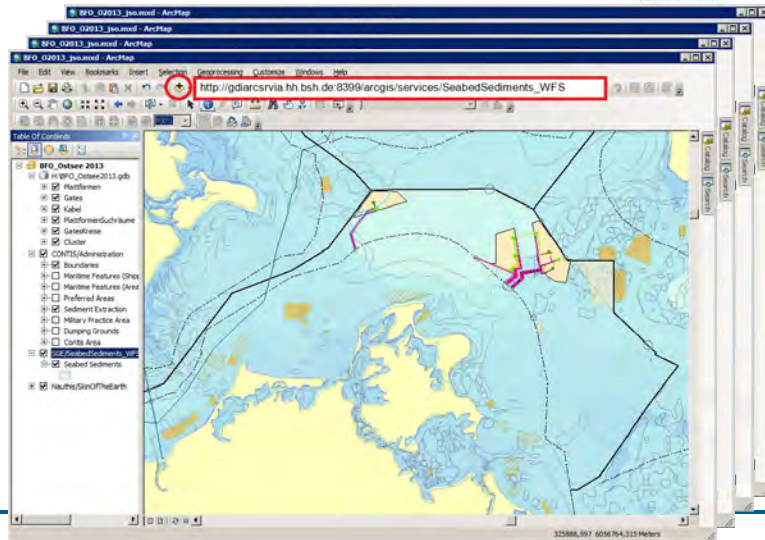
w/

own data

+

GDI-BSH WMS

GDI-BSH WFS



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## Data access (examples)

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GeoSeaPortal

- Data search
- Data visualization
- Data access



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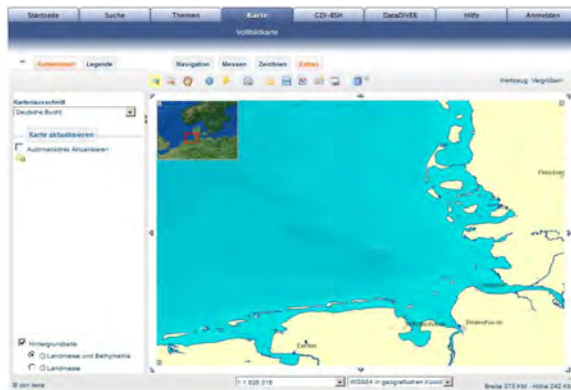
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## Data access (examples)

### GeoSeaPortal

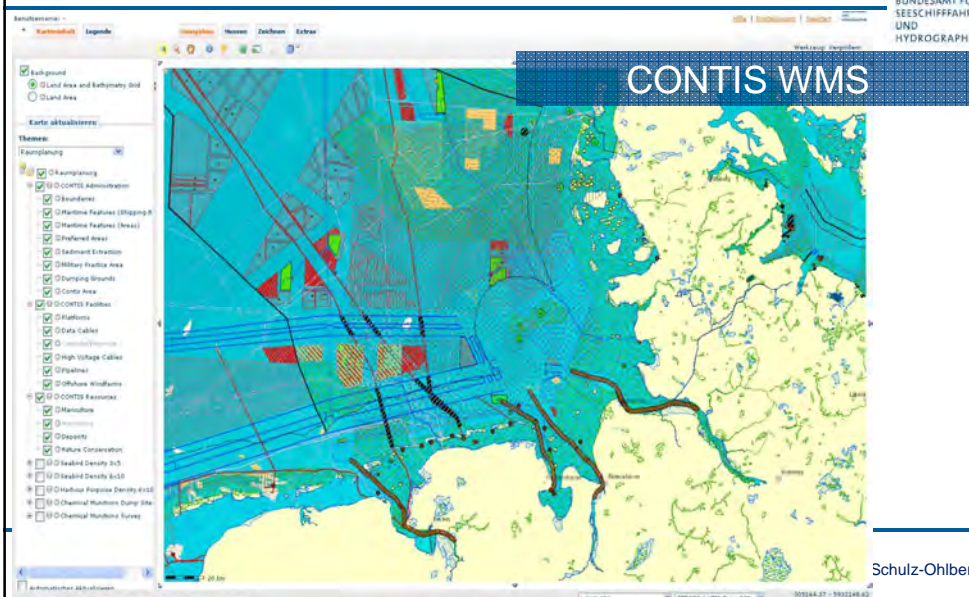
- Map client



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## Data access (examples)



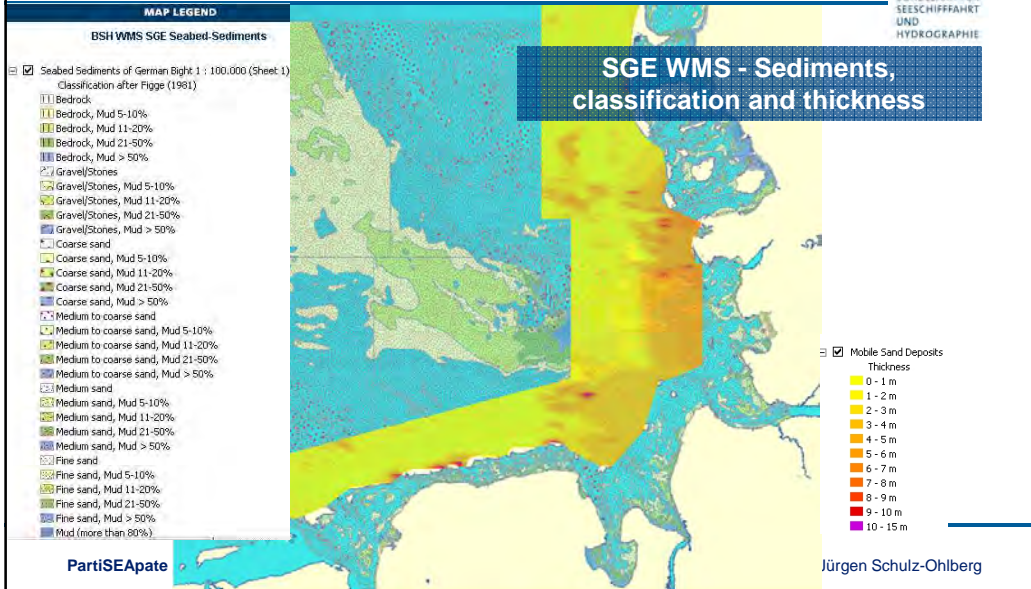
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## Data access (examples)

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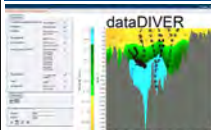
## Data access (examples)

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### dataDIVER



#### data

- ..... Digging
- ..... Investigation
- ..... Visualization
- ..... Exporting
- ..... Reporting

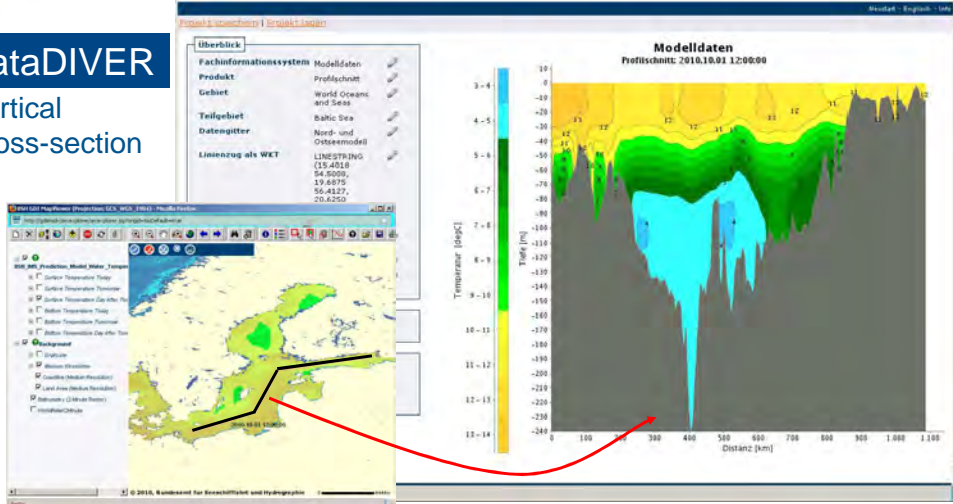
- is a joint development of BSH and external software engineers
- generates user controlled dynamic products that are not supported by OGC services, e.g.

- time series
- vertical and horizontal profiles
- vertical and horizontal cross-sections
- data download

## Data access (examples)

### dataDIVER

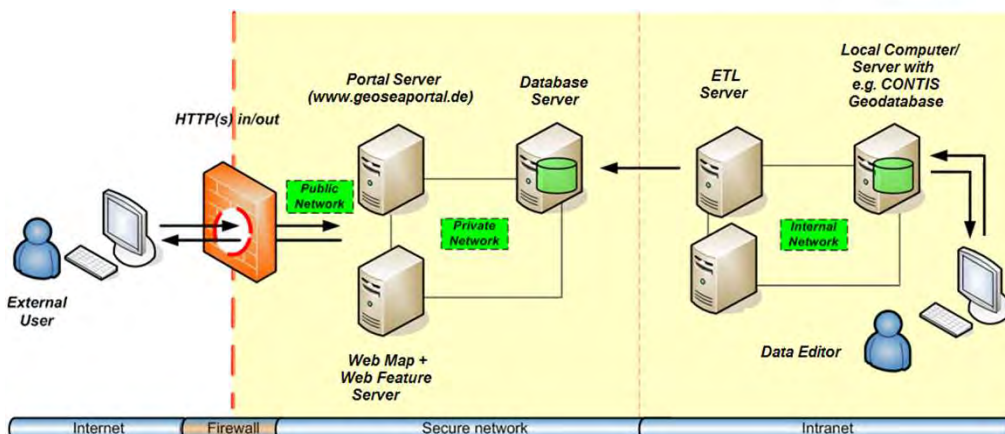
vertical cross-section



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## Basic Architecture



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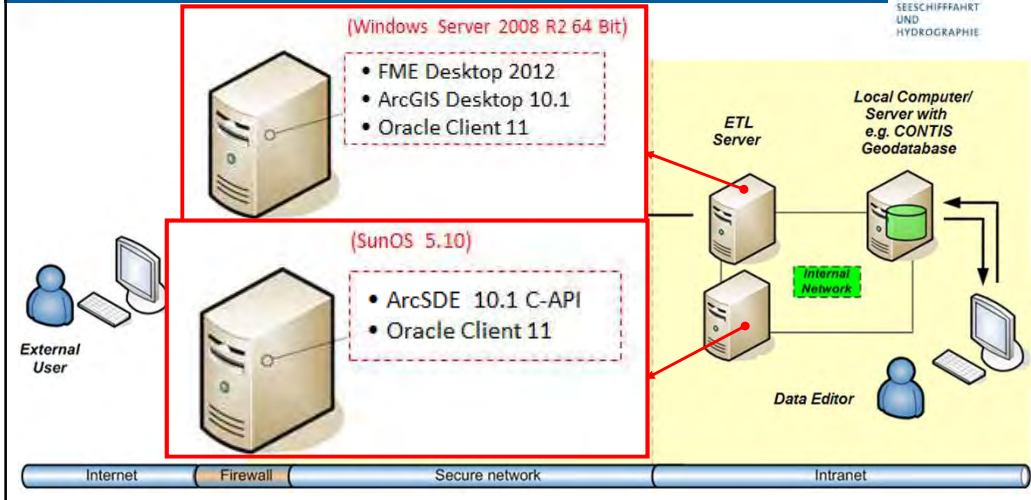


## Basic Architecture

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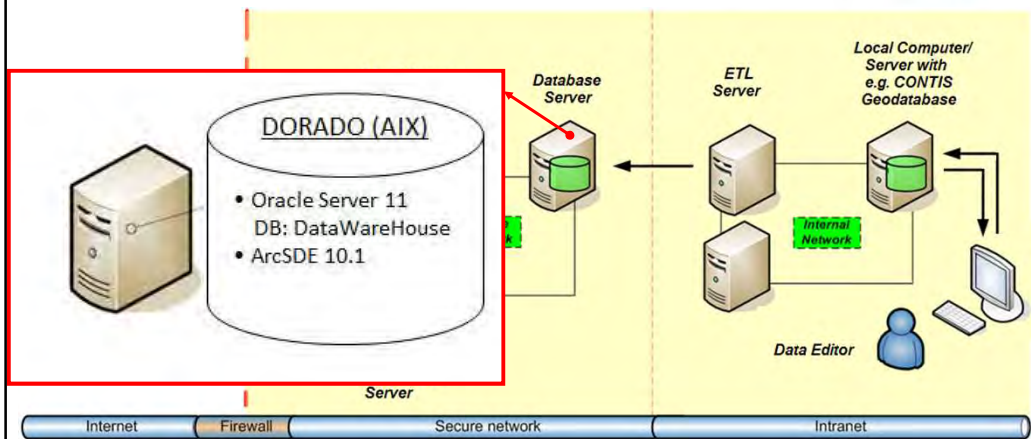
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## Basic Architecture

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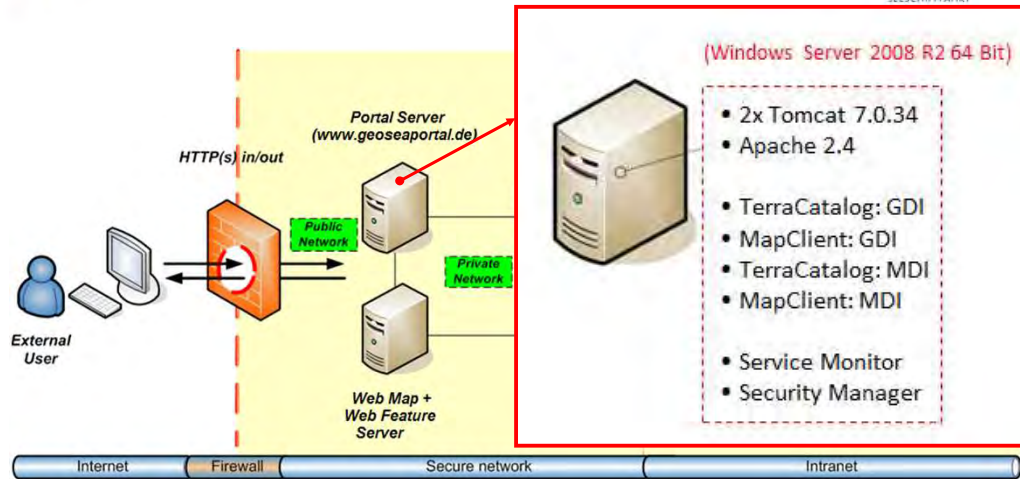


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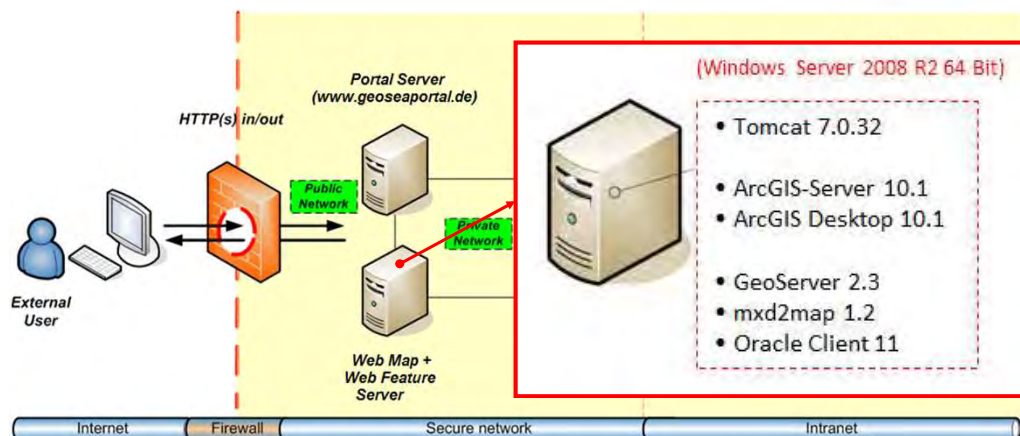
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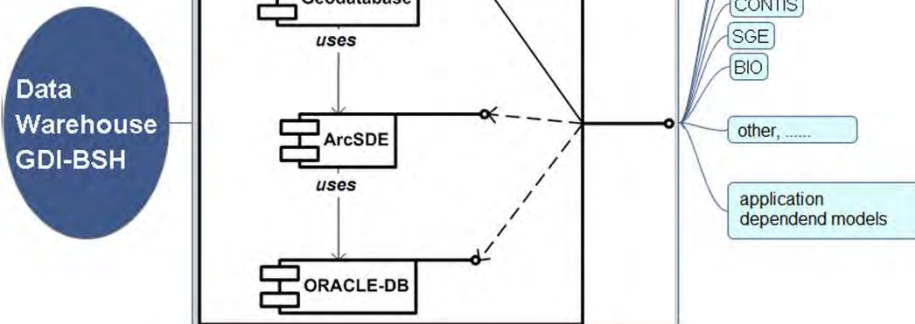
## Basic Architecture



## Basic Architecture



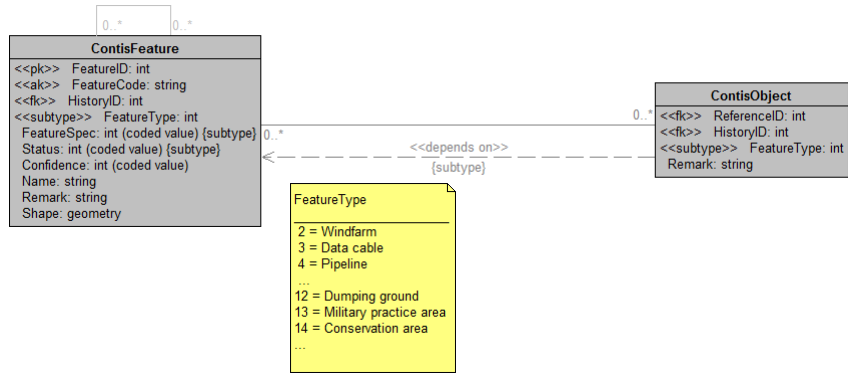




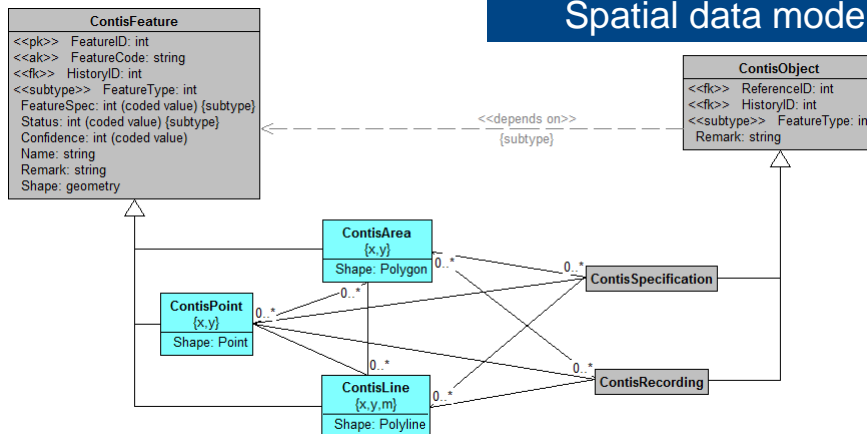
### Basic principles

- Make it suitable for many kinds of data access (editing, inquiry, visualization, download, service based publishing, ...)
- Keep it as simple but as thoroughly as possible
- Avoid the need for continuous modifications (due to new functional requirements)
- But in the case of, make it easily expandable (without the need for major modifications of dependent applications)

Abstract data model



Spatial data model

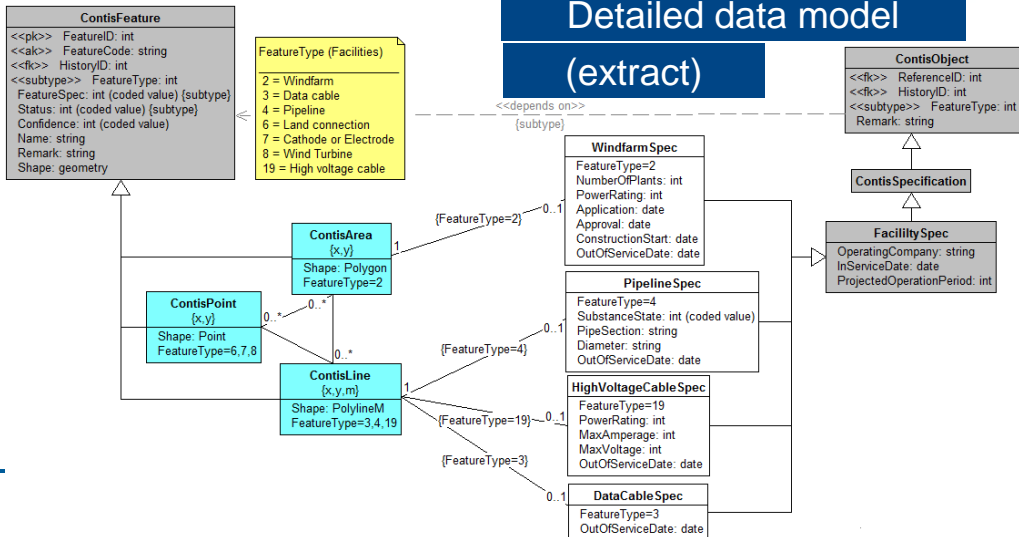




# Data model design (CONTIS)

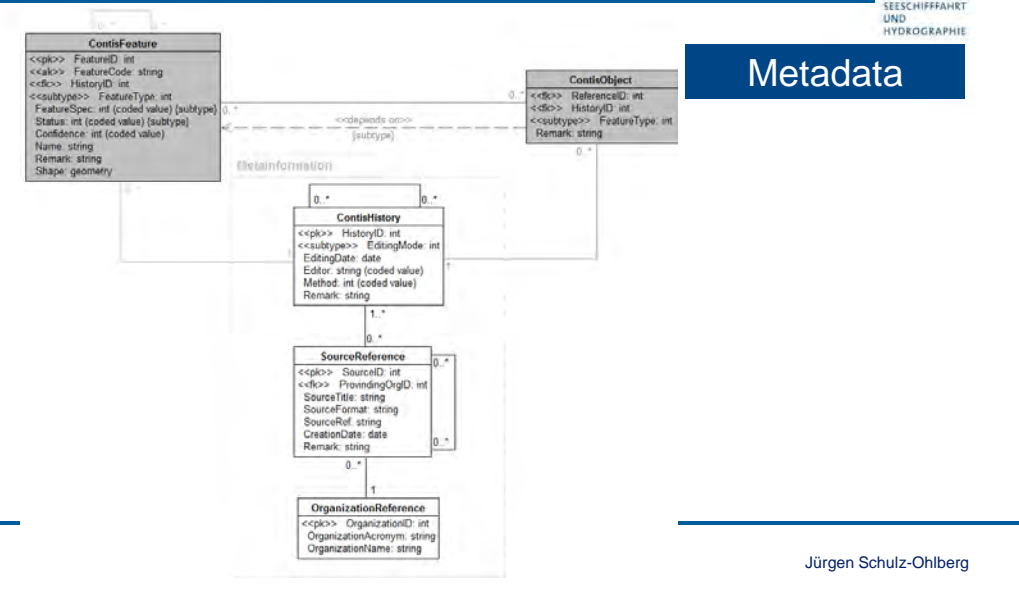
## Detailed data model

(extract)



# Data model design (CONTIS)

## Metadata

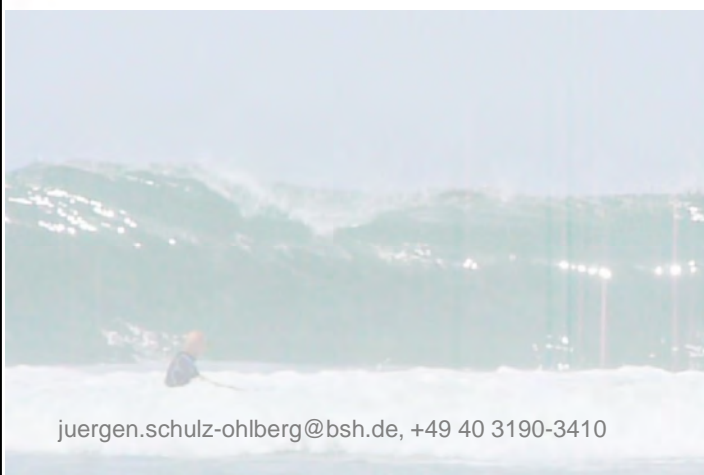


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## Minimum (technical) requirements for MSP

- **Computer** (PC, Workstation, Mainframe, ...)
- **Web Server** (e.g. Apache Tomcat, ...)
- **Web Map Server** supporting OGC standards (e.g. Map Server, Geo Server, ArcGIS Server, ...)
- **Spatially enabled Database** (e.g. Oracle w/ Spatial or ArcSDE, PostgreSQL w/ PostGIS, ESRI Person, ESRI File Geodatabase, Shape file system, ...)
- **GIS system** (e.g. ArcGIS Desktop, ...)
- **Appropriate and applicable data model** (fitting the functional needs)
- **Data**

## Thank you for your attention!



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