INSPIRE

Geopackage Hackathon

Austria

Fahrner/Jobst

Agenda

- Geopackage Hackathon

- Pragmatic examples and observations

- Further activities

Geopackage

- Main struggling: predefined download dataset vs. download services

- Working against INSPIRE?

http://ngageoint.github.io/geopackage-js/?gpkg=
http://www.geopackage.org/data/empty.gpkg

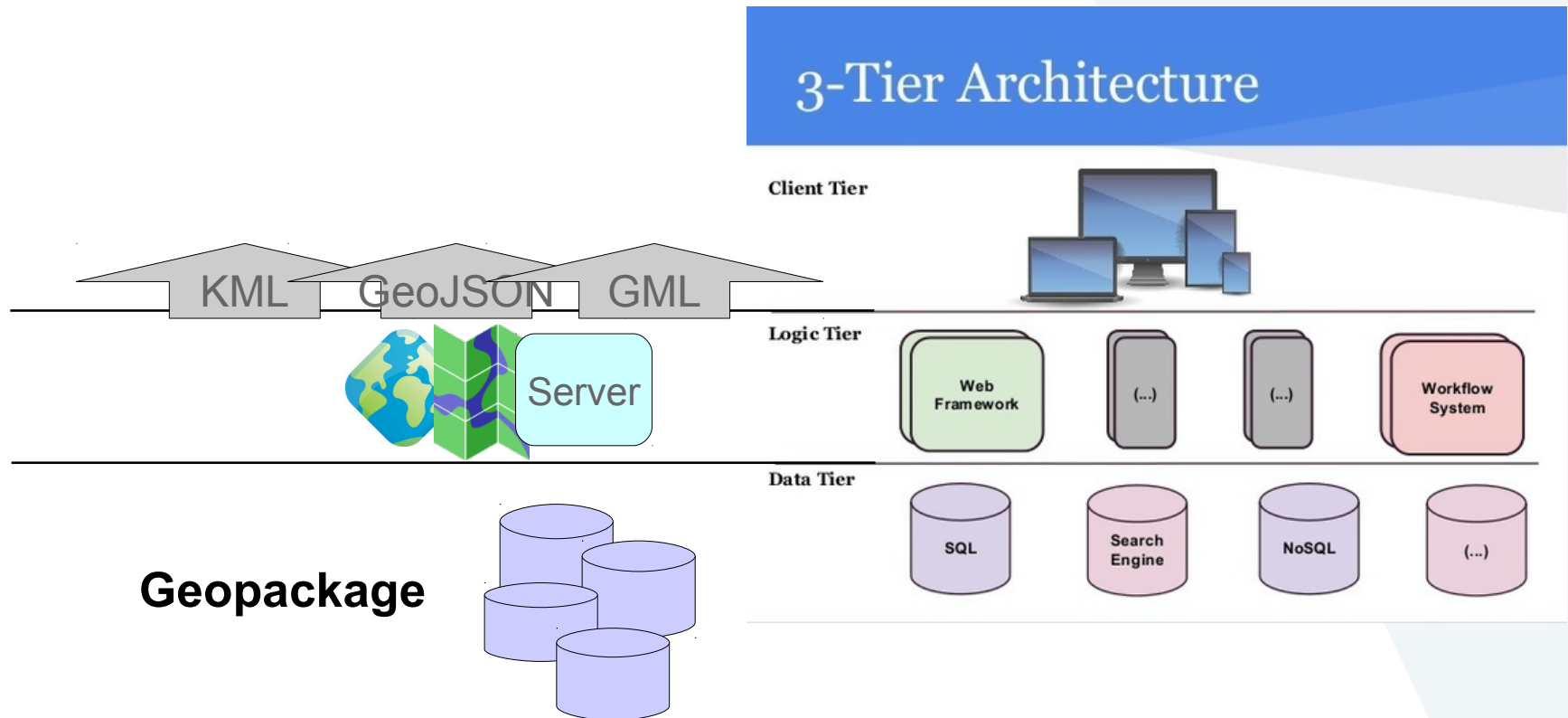# Geopackage Hackathon AT

- – alternative encoding for INSPIRE predefined packages

- – 53 Austrian experts

- – a full day of hands-on sessions

- – creating a common view on a new technology

Geopackage

- – Geopackage is a DB-file

- – It does not stream data itself

- – It can be used as source to stream data

KML GeoJSON GML

Server

Geopackage

3-Tier Architecture

Client Tier

Logic Tier

Web Framework (...) (...) Workflow System

Data Tier

SQL Search Engine NoSQL (...)

Geopackage

- Austria is keen to promote the GeoPackage

- alternative format for data exchange

- on (open) data portals where GPKG is used to provide **large datasets** such as raster images and maps.

- The GIS division of the Ministry of Sustainability and Tourism has **replaced the shape file** in their internal workflows.

- INSPIRE harmonized AU in Austria are delivered as GPKG including a **flat view** for GIS

Geopackage

- ability to store vector and raster data in a database along with its MIME encoded metadata

- spatial indexing and R-Trees to enhance the performance

- possibility to be extended to host other data types

- Out of the box spatial functions that allow for working directly with the data (without GIS)

- does not require being zipped/unzipped (it si one single file already, but zipping will reduce file size)

- maximum file size of around 140 TB

- additional data types can be stored via extensions (e.g. 'Tiled Gridded Coverage Data' extension enables to work with elevation data)

Geopackage Applikationen

- **GDAL, Geoserver**

- **QGIS,**

- **ESRI ArcGIS for Desktop 10.2.2**

- Hexagon LuciadMobile and LuciadFusion products

- SpatiaLite

- Safe Software FME Desktop

- GeoTools

- TerraGo

- OpenJump Plus

- Pitney Bowes Software MapInfo Pro, MapXtreme, Manifold

http://www.geopackage.org/implementations.html

Geopackage Implementation Evaluation

- The level of implementation is changing rapidly

- it's recommended to work with the most current versions

- FME Desktop (v.2019) there are separate OGC GeoPackage and OGC GeoPackage Tiles Writers and Readers available

- Accessing GeoPackage via Office applications (MS Office, Libre Office) is possible

  - requires an ODBC driver and the SpatiaLite DLLs

  - creating and working with GeoPackage via GDAL/OGR is efficient for both, raster and vector data
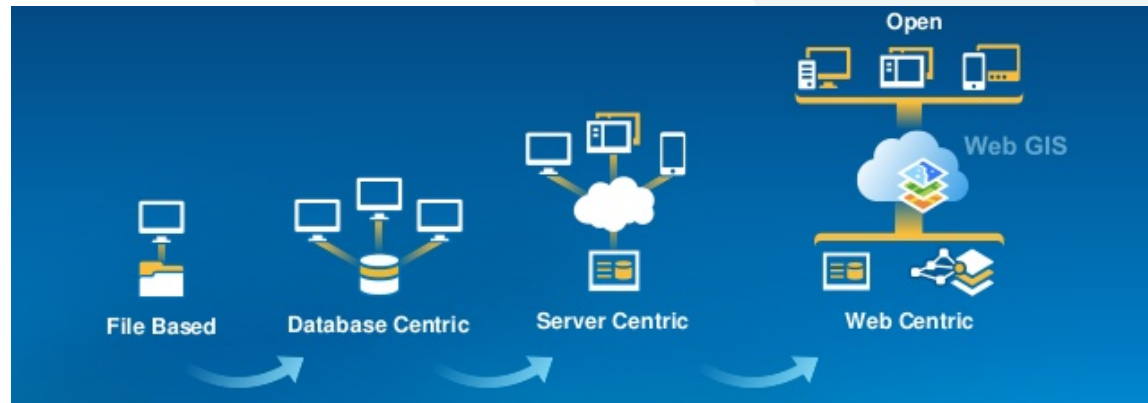
Geopackage in ArcGIS

- In ArcGIS (10.6.) and ArcGIS Pro (2.3) reading and writing GeoPackages is well implemented

- function to create a new GeoPackage is 'hidden' in the 'Create SQLite Database' Tool

- In ArcGIS, tables without geometry are not displayed

- it is possible to create Views, the required entries in the geometry metadata tables are not set

- the software will recognize well-defined Views if they are available

Geopackage in QGIS

- In version 3 of QGIS there have been many improvements regarding the GeoPackage

- Reading and writing is very similar to other data formats so that no additional functions are needed

- Database Manager to load and edit data

- creating of Views is lacking

- metadata tables are only shown if the connection is made through the SpatiaLite driver

- saving and loading styles as well as defining default styles, which means that the data is loaded in the correct style (this is a QGIS specific characteristic)

Geopackage in Geoserver

- In Geoserver GeoPackage can be used as a data store

- extension to use it as an output format for WFS/WMS services

- it is not possible to automatically read SLD styles
  (the ones stored in the GPKG file; requires copy and paste into geoserver SLD)

Geopackage Hackathon Responses

- A few examples of successful implementation of GeoPackage were shown.

  - included raster integration with the national base map,

  - application for the national water department in order to test routines for hazardous areas,

  - Office and mobile applications

- Feedback from the participants was **overwhelmingly positive**

- Hackathon opened the **interest for testing the GeoPackage's potential**

- Strengthened the idea of **using GPKG as a Shape file substitute**

- presenters encouraged the audience to actively get involved with **further development** on this data format

Geopackage – further activities in AT

- Development of a geopackage writer for hale studio

- Development of the data model for at least one INSPIRE topic

- Automated writing of a geopackage database (without a template file) based on the INSPIRE target schema

- Use the model transformation rule developed for the GeoJSON Encoding Rule, where appropriate