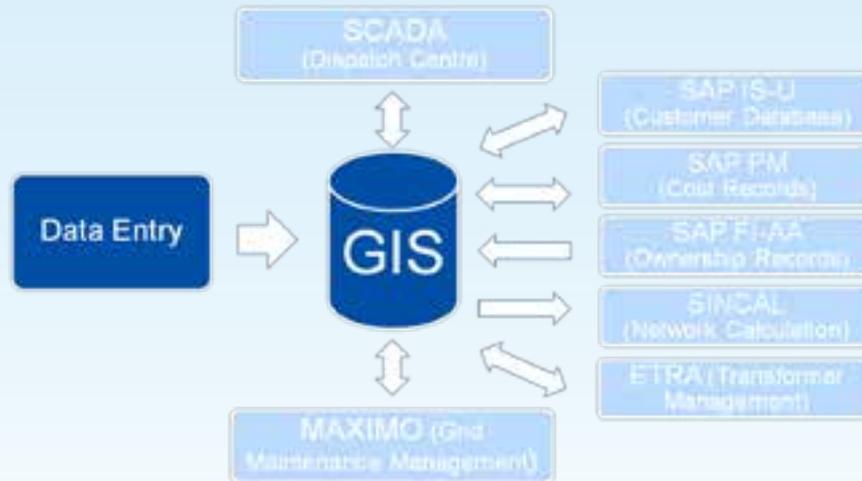


# Integration of ArcFM UT with SCADA, SAP, MAXIMO and Network Calculation



Peter Harabin (VSE)  
Martin Mydliar (ArcGEO)

# Agenda

- > Business/process part = **WHAT** to integrate?
- > Technological part = **HOW** to integrate?
- > Lessons learned & Future plans

# Východoslovenská energetika a.s.

## Company Profile

- > energy utility company
- > member of the RWE Group since 2003
- > more than 605.000 service points
- > mission = provide reliable and complex services which correspond to the needs of customers
- > Electricity distribution 3,8 TWh in 2011
- > average number of employees = 1.569

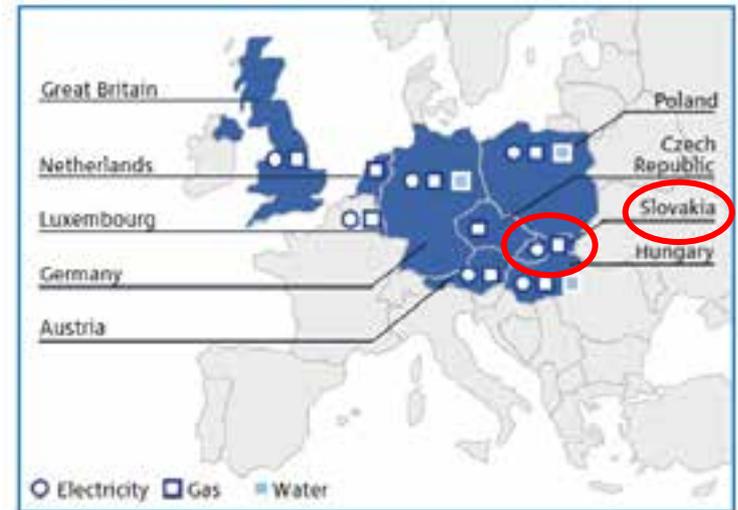
## Shareholders

National Property Fund: **51 %**  
RWE: **49 %**



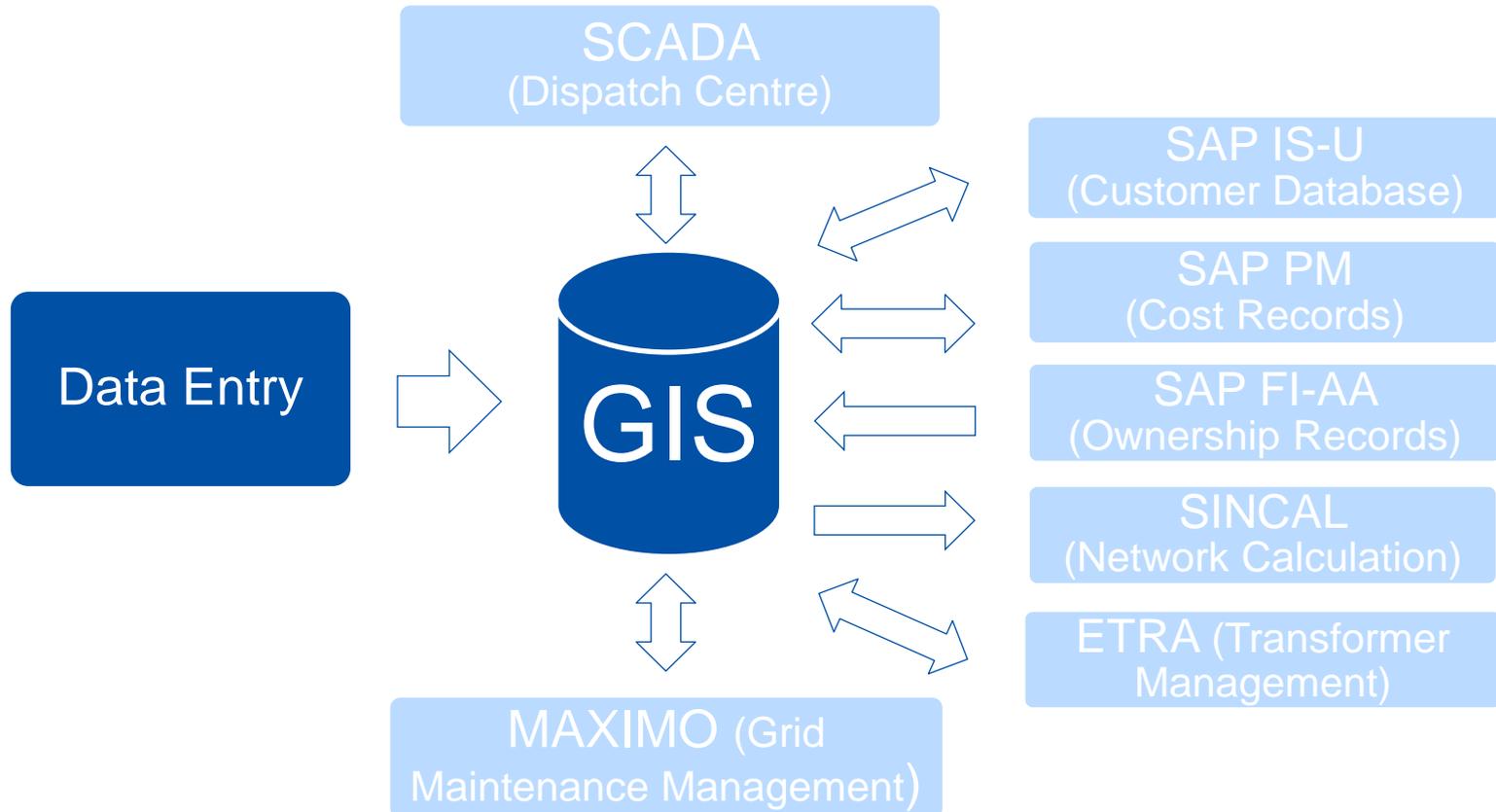
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RWE in Europe



§	<b>Distribution area</b>	16 221 km <sup>2</sup>
§	<b>HV Lines</b>	1 292 km
§	<b>HV &amp; MV substations</b>	59
§	<b>MV Lines &amp; Cables</b>	8 460 km
§	<b>MV / LV Distribution stations</b>	5 339
§	<b>LV Lines &amp; Cables</b>	12 104 km

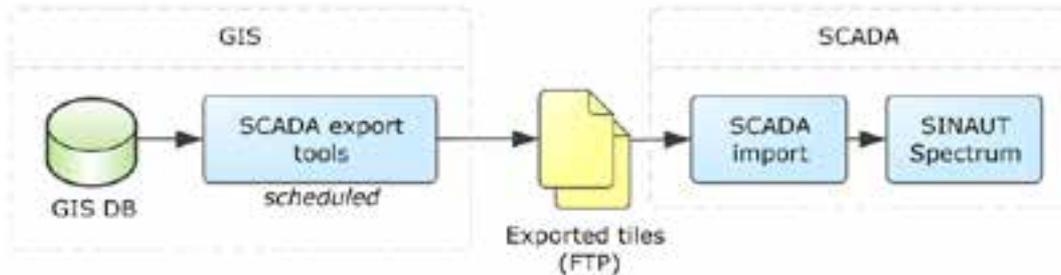
# GIS Integration



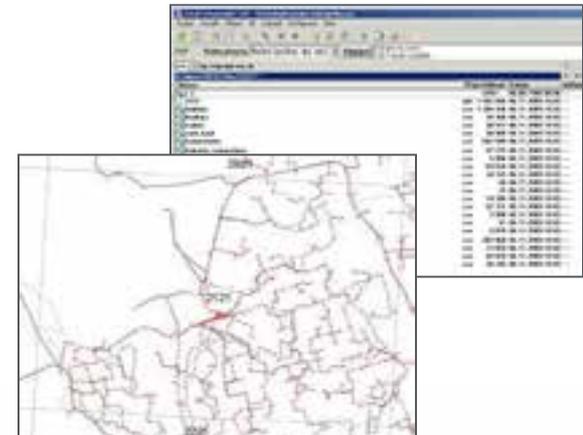
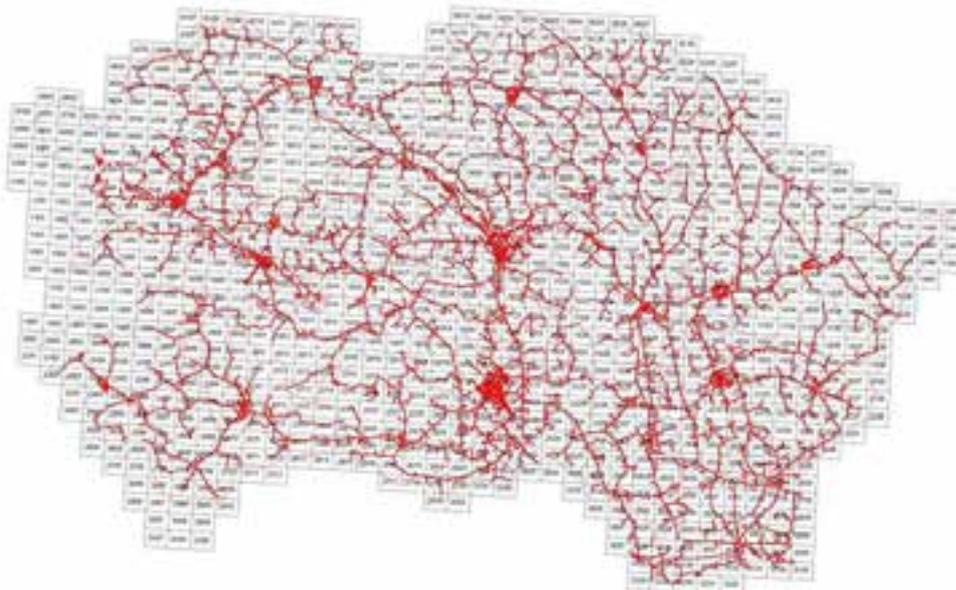
**GIS became a **master** source of the distribution network of VSE:**

- > Geographic data + Detailed technical records of electricity distribution devices
- > Data update process (distribution network) = managed by the GIS department

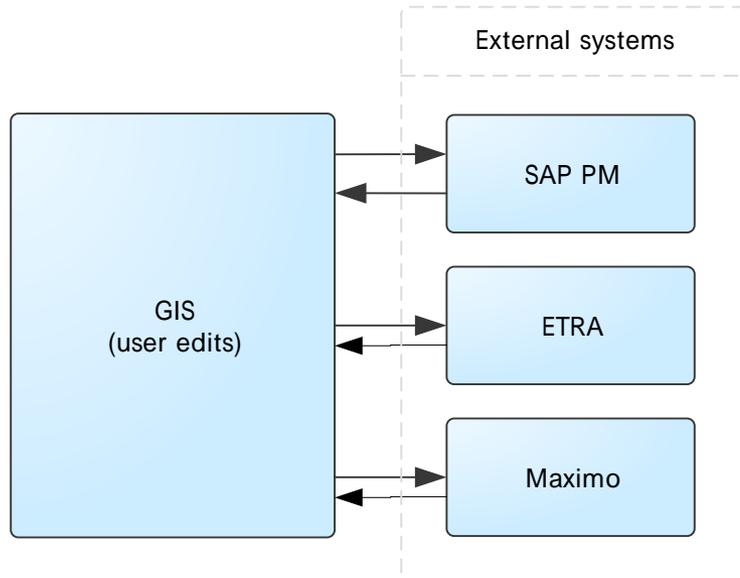
# GIS – SCADA (offline scheduled export)



- > Initial & Incremental scheduled export
- > Input = MV data (divided into tiles)
- > Output = DXF+CSV files (SCADA FTP upload)
- > In operation since 9/2008



# GIS – SAP PM, ETRA, Maximo (online integration)

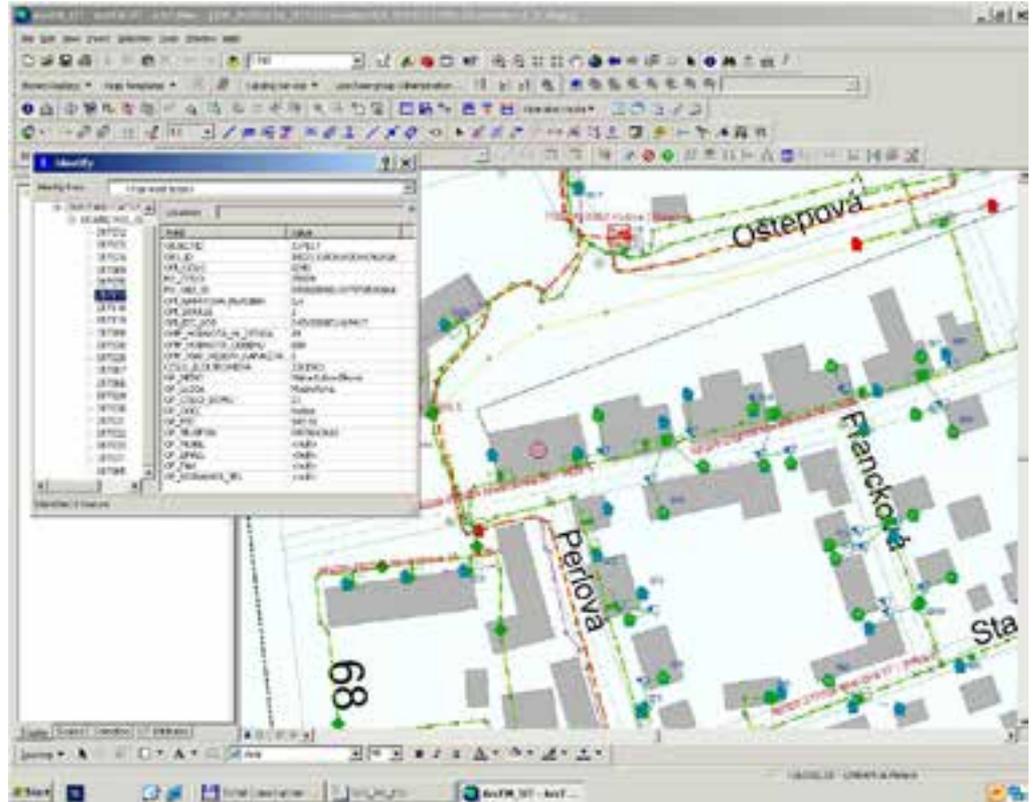


- > All MV objects
- > Data handling in GIS („image“ to Maximo)
- > State of equipment back to GIS
- > In operation since 6/2011 (sequential roll-out)

- > All HV and MV objects
- > Data handling in GIS („image“ to SAP PM)
- > SAP ID back to GIS
- > In operation since 3/2010
  
- > TX (Transformer) – MV/LV
- > Create TX in GIS
- > Update TX in ETRA
- > GIS forwards messages to SAP and Maximo
- > In operation since 3/2010

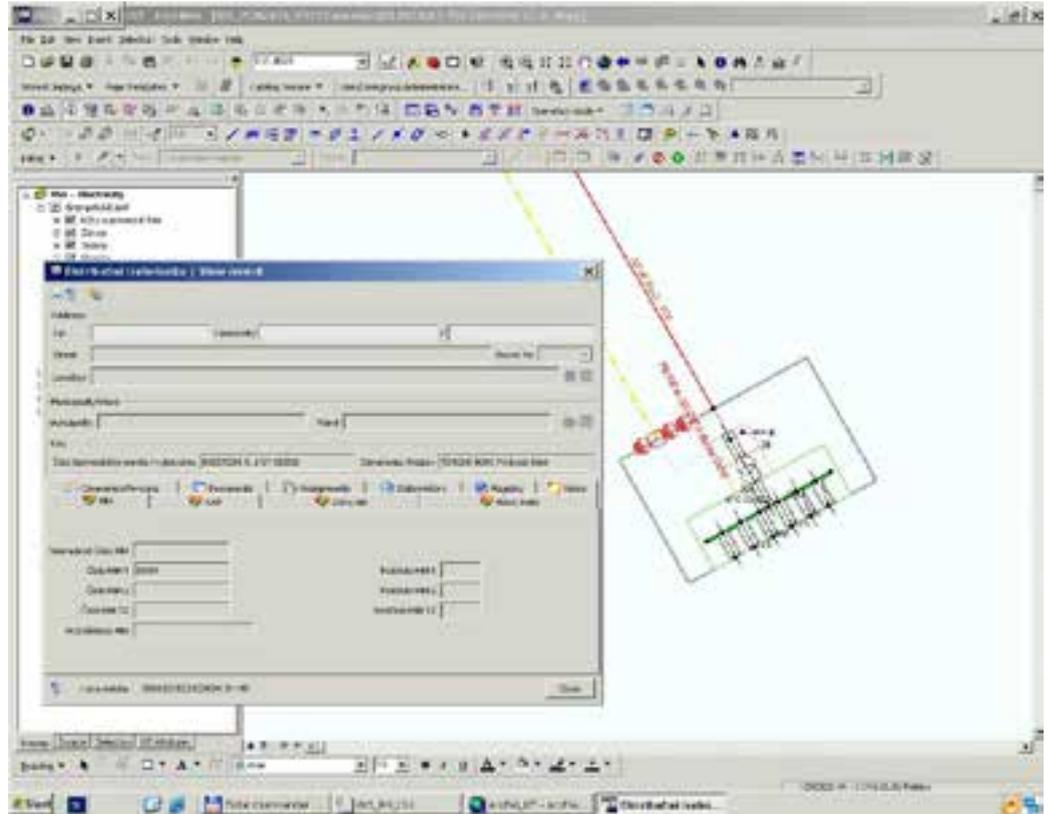
# GIS – SAP IS-U (online integration + scheduled „pull“ export)

- > Customer data (source SAP IS-U)
- > Service point (based on the current grid configuration) + coordinates of customer (source GIS)
- > In operation since 9/2009



# GIS – SAP FI-AA (online integration)

- > Ownership information of equipment (source SAP FI-AA)
- > All MV objects
- > In operation since 3/2010



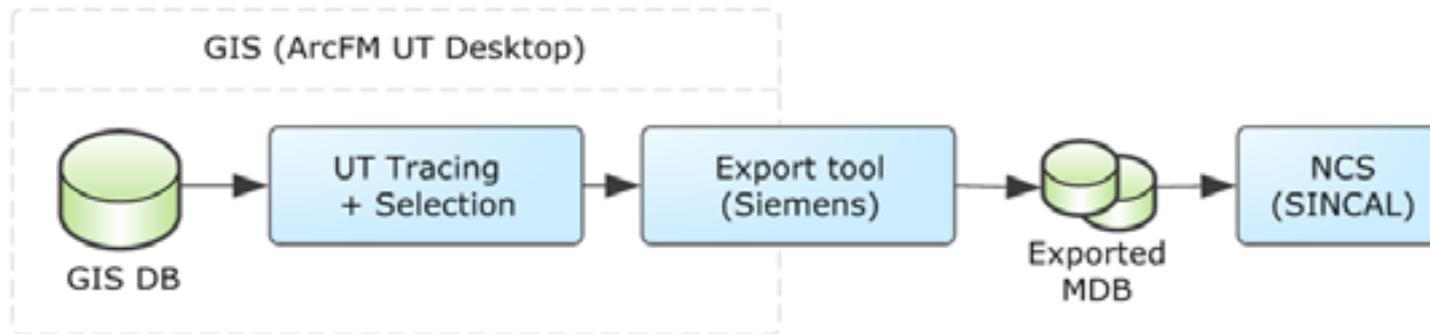
# GIS-SAP Integration – Project benefits

- > Storing data in a single „primary“ system (GIS)
- > Reducing data management workload
- > Removing old isolated legacy applications for technical data management
- > Reducing number of SAP clients in VSE
- > Solving online communication of SAP IS-U with GIS

**Enabled the successful implementation of Maximo (grid maintenance management) and its integration with GIS.**



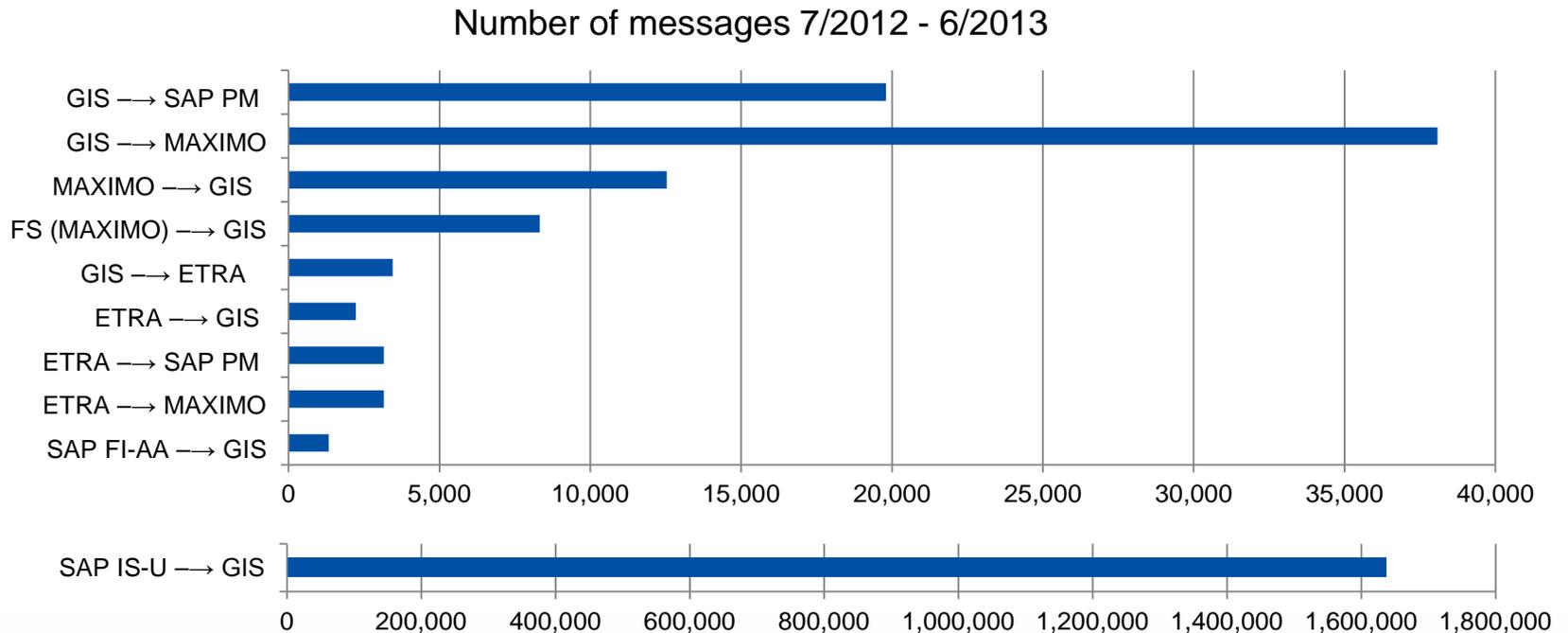
# GIS – NCS (offline export)



- > All HV, MV, LV objects
- > Off-line export directly from GIS
- > In operation since 11/2011

# GUI - GIS integration monitoring

- > Bespoke SW tool for monitoring GIS integration (SAP, MAXIMO, ETRA)
- > Allows immediate resolution of errors
- > In operation since 7/2012



# ArcGEO Information Systems



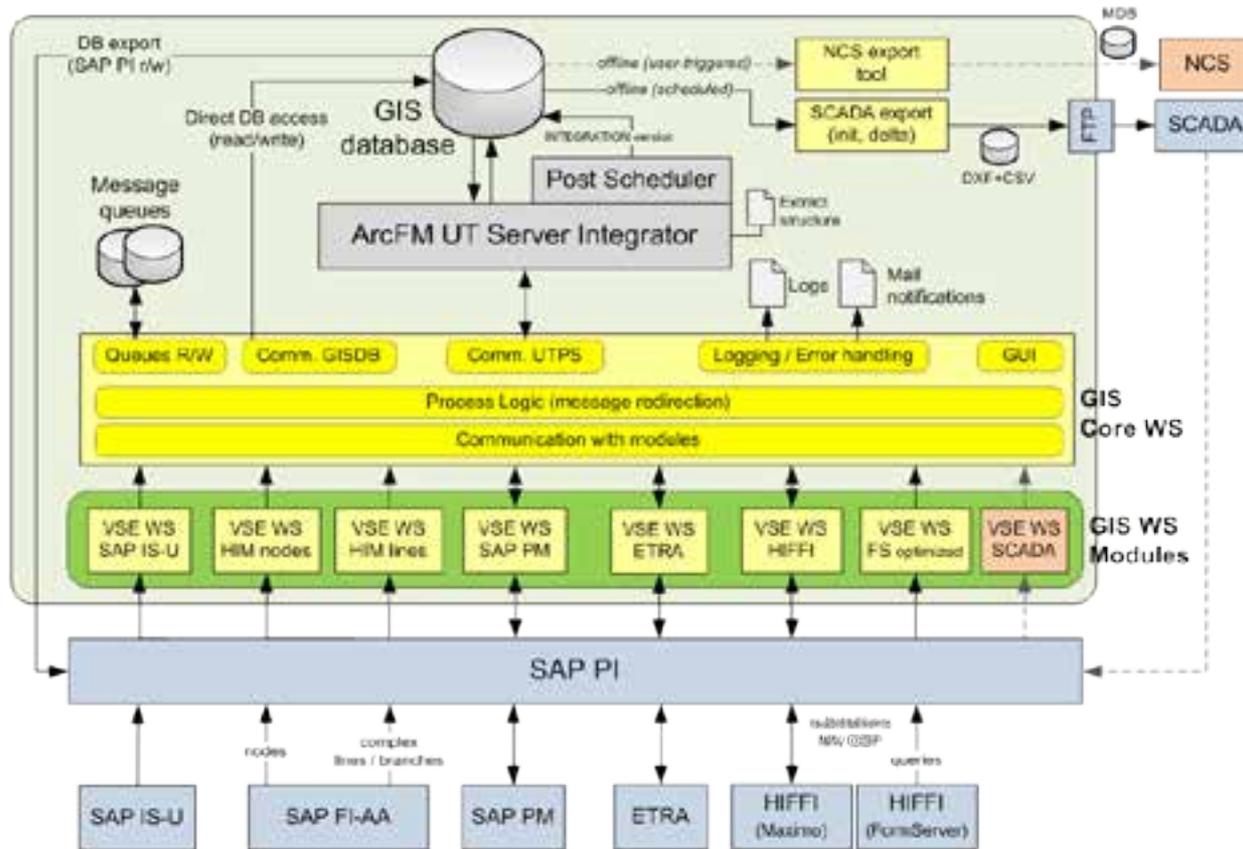
- > Esri Distributor in Slovakia
- > Founded in 1993
- > Leading GIS supplier and innovator in the country
- > SW solutions for integration of spatial data
- > AED-SICAD Distributor in Slovakia
- > AED-SICAD Business Partner Award

**Microsoft**  
GOLD CERTIFIED  
Partner

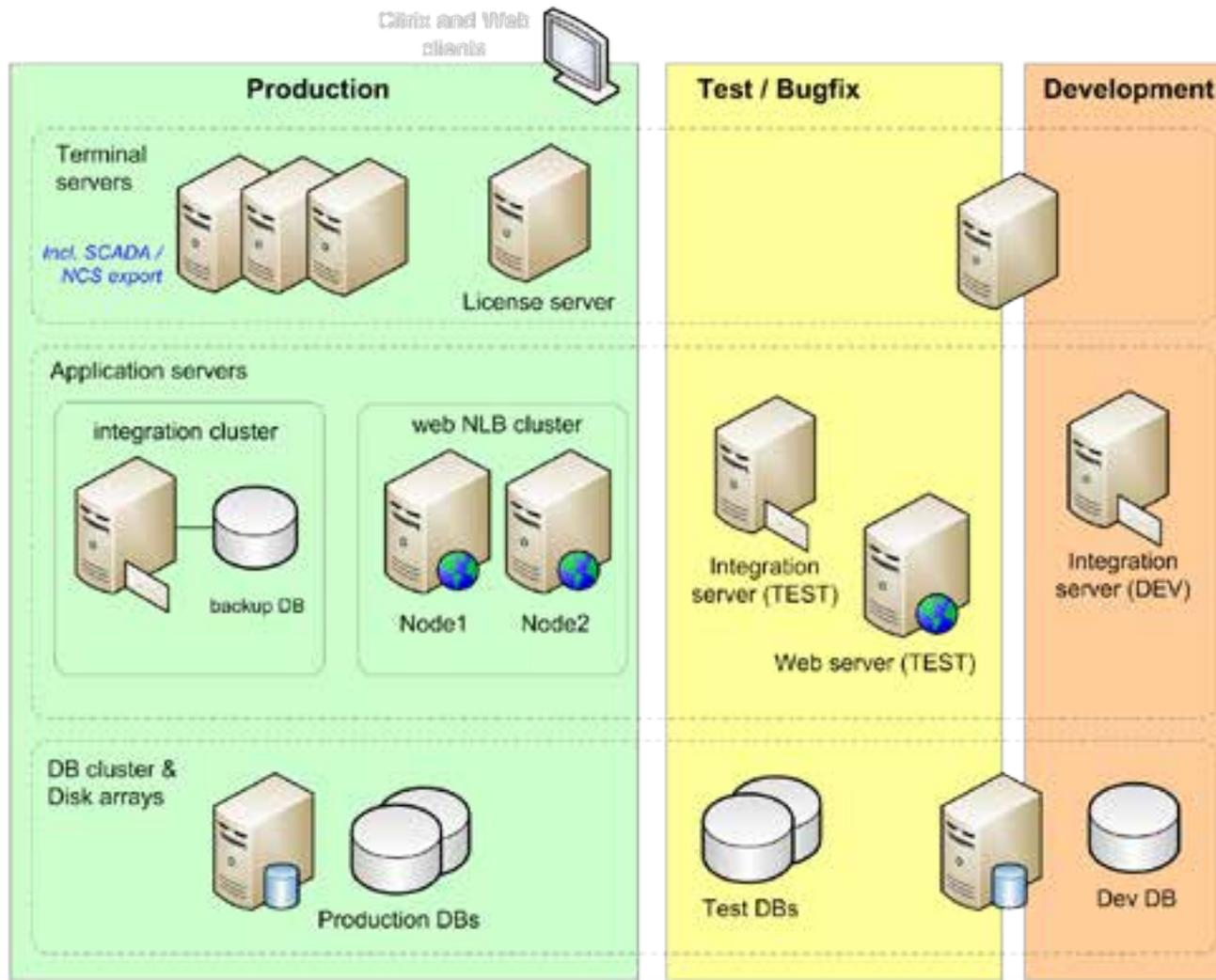


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# GIS Integration at VSE – Evolution



# GIS Landscape



# Project aspects of VSE integration

- > External systems require new attributes / objects / relations
  - VSE data model: DM v1 à v22d
  - Data migration and editing (new tools), update data & tools to new DM
- > Deployment plan & coordination of projects is essential
  - Up to 6 projects running simultaneously at VSE
  - Dev AG à Dev VSE à Test à Prod à Bugfix (Test)
  - Synchronize and maintain all WS/tool versions
  - **Align activities with 3rd parties – impl., testing, deployment**
  - VSE DM changes drive the process – make projects sequential
- > Design on 2 levels:
  - current integration & its needs
  - big picture = process and data integration (dependencies)



# Lessons learned

Many GIS integration projects were/are running in parallel, which leads to:

## Situation:

- > Permanent necessity for integration development
- > Extremely demanding for coordination
- > Huge DM updates (with impact on others integrated systems or external suppliers)
- > Necessity for exact integration monitoring

## Has to be done:

- > To create every new integration with perspective and in modules
- > Relevant project organization, relevant forces
- > Planning and merging (if possible)
- > Creation of exact integration monitoring tools (GUI)

# GIS Integration at VSE – Future plans

- > Upgrade to ArcFM UT v10 platform – in progress now
  - Design phase
- > GIS data update from Maximo field client – in progress now
  - Implementation is starting
- > GIS data providing / Dissemination of GIS data via a portal solution - planned
- > And many other minor projects



Thank you for your attention



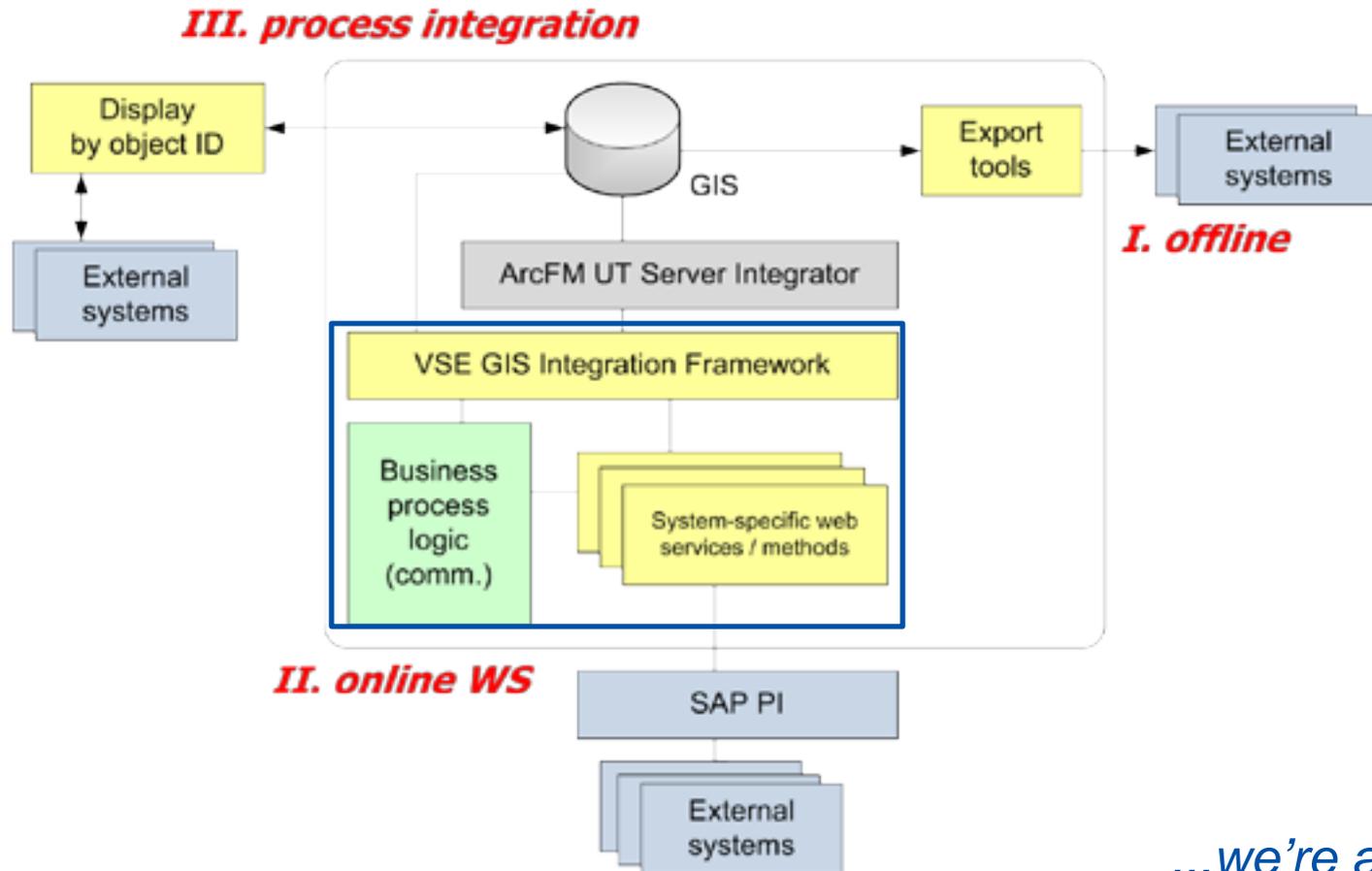
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Back up



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# GIS Integration – Vision



...we're another step closer



# Project phases

- > Project planning – priority, schedule, dependencies
- > Analysis & Design
  - Object & attribute mapping + **extract structure** (ArcFM UT Server Integrator)
  - Interface – online (WSDL) & offline (MDB)
- > Implementation
- > **Integration & Regression testing**
  - 1<sup>st</sup> phase = contractor testing – development env.
  - 2<sup>nd</sup> phase = customer testing – testing env.
- > **Deployment**
  - DM deployment & data restructuring
  - Initial data migrations
  - Web services à check communication
- > **Pilot**
- > **Integration support**
  - > Bugfixing, tuning, monitoring

