

# Thematic Cartographic Web-Services

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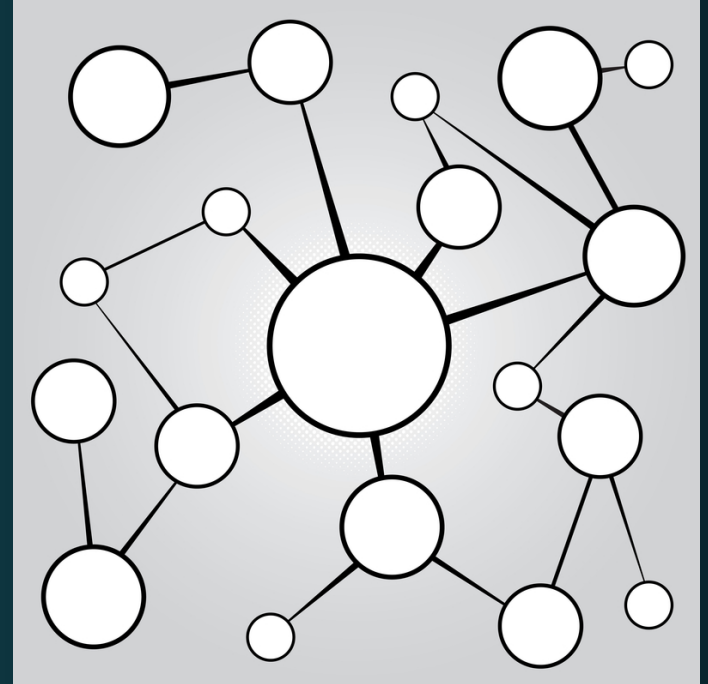
Institut für Kartografie und  
Geoinformation - ETH Zürich

16.01.13

# **Service-oriented architecture for thematic cartography on the web**

# Why?

**The Web as distribution platform**  
**Cloud computing and SaaS**  
**Ubiquitous Web**



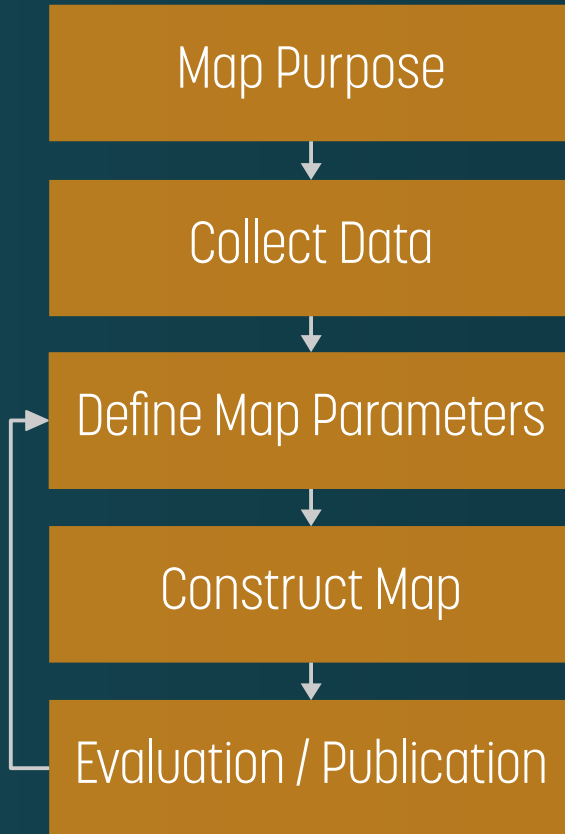
# Research Questions

Can the elements and the sequences of thematic cartography for the web be represented by one workflow?

Can the thematic cartographic work-flow be modeled with a service-oriented architecture?

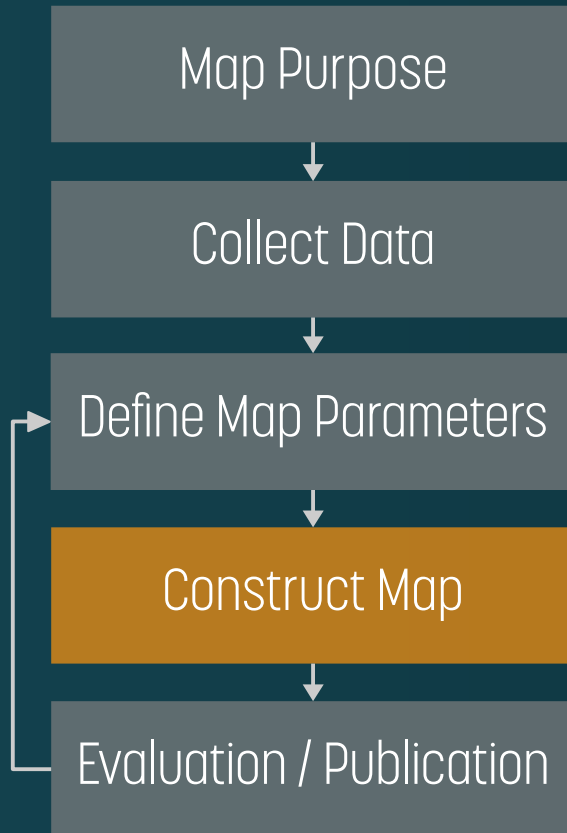
Are the existing standards and technologies sufficient for the implementation of the service-oriented architecture?

# Workflow

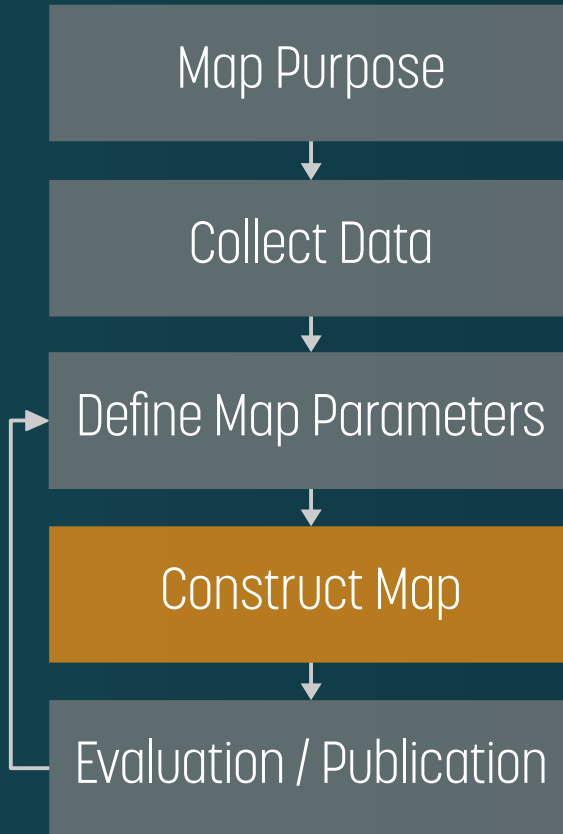


<http://www.gitta.info/>

# Workflow



# Workflow



- 2D Thematic Maps
- Vector Data
- Layer-based Approach
- Standard Techniques

Select  
Spatial Data



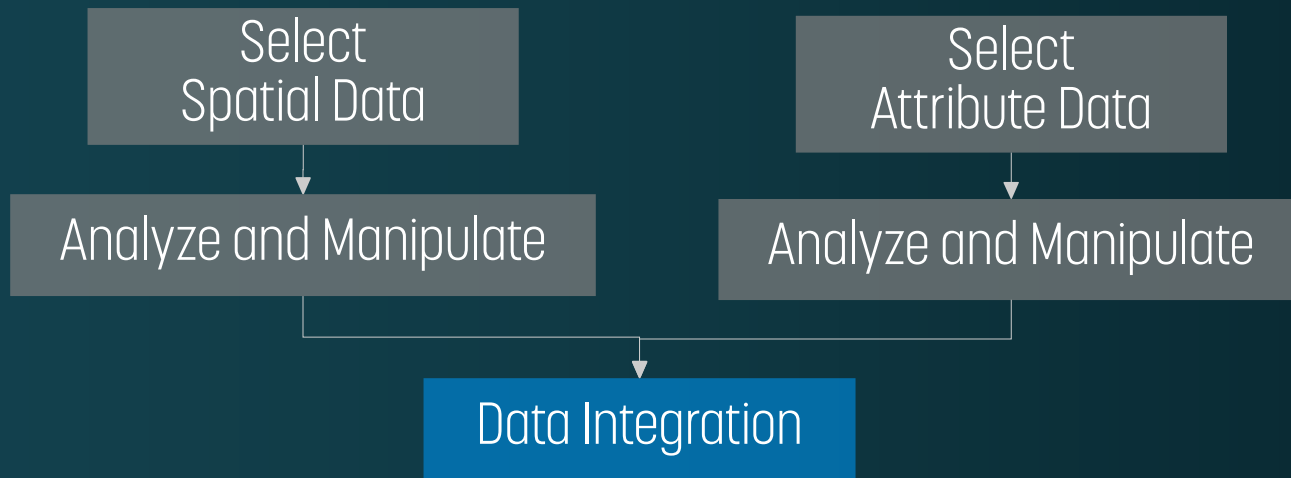
Analyze and Manipulate

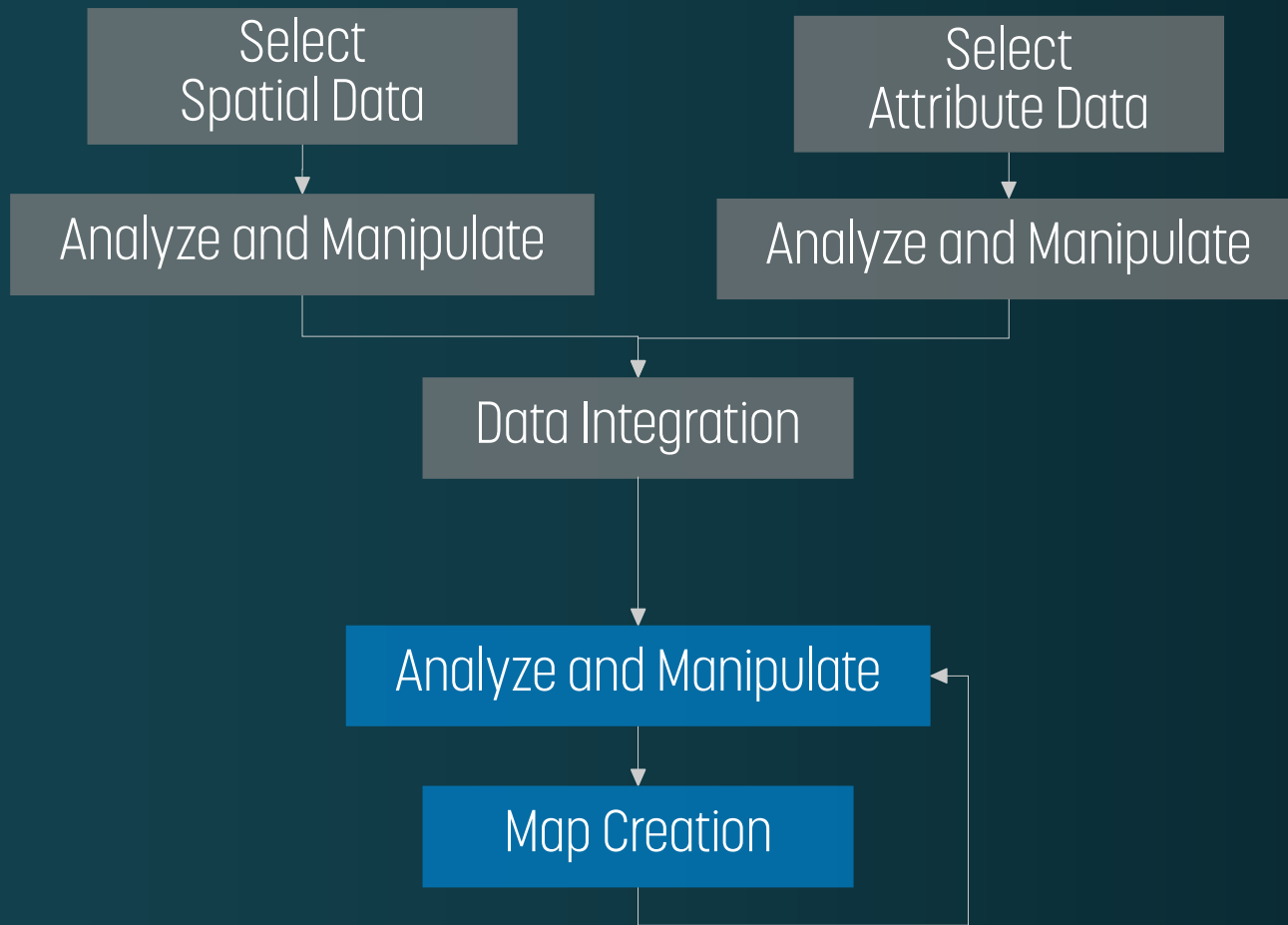
Select  
Attribute Data

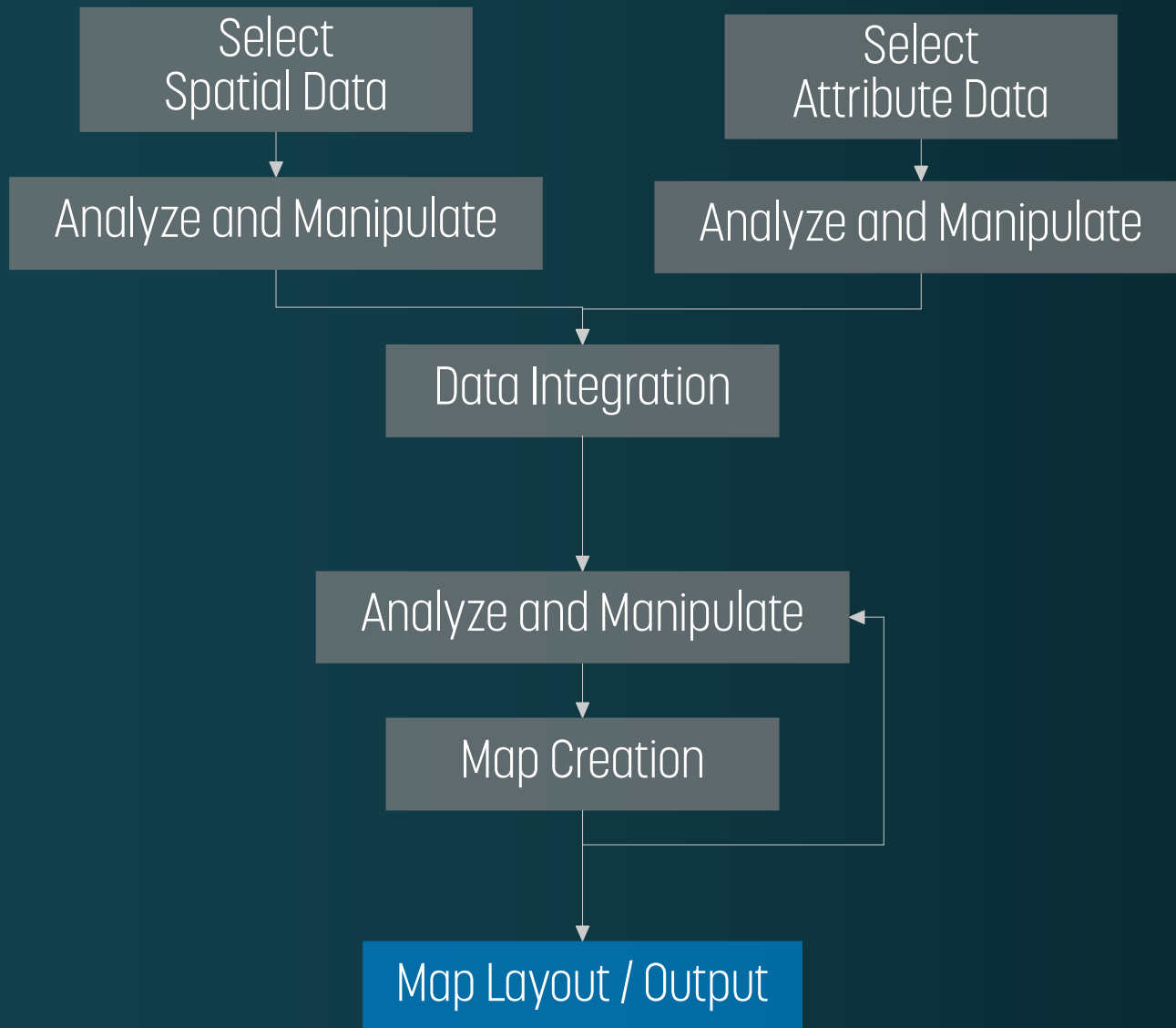


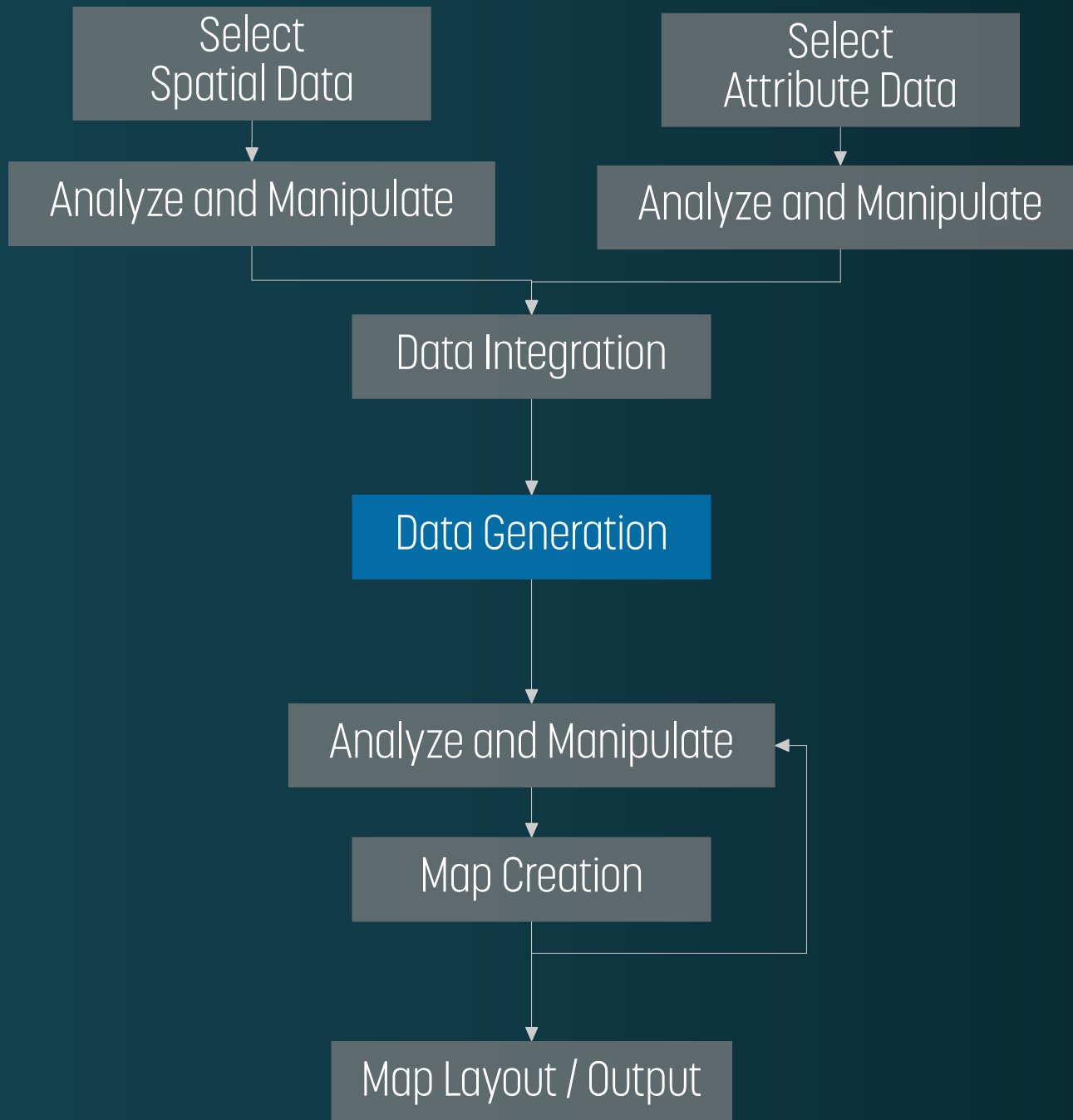
Analyze and Manipulate







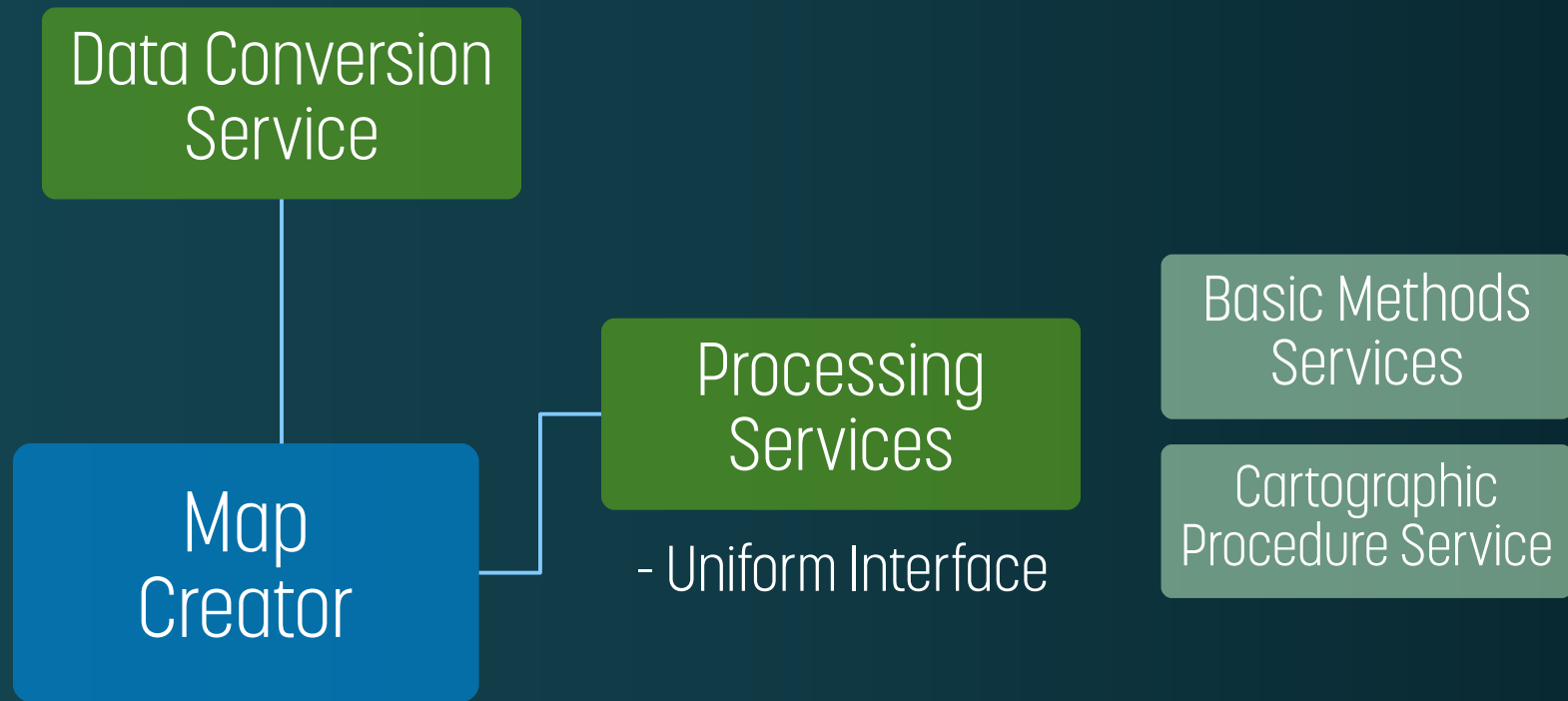


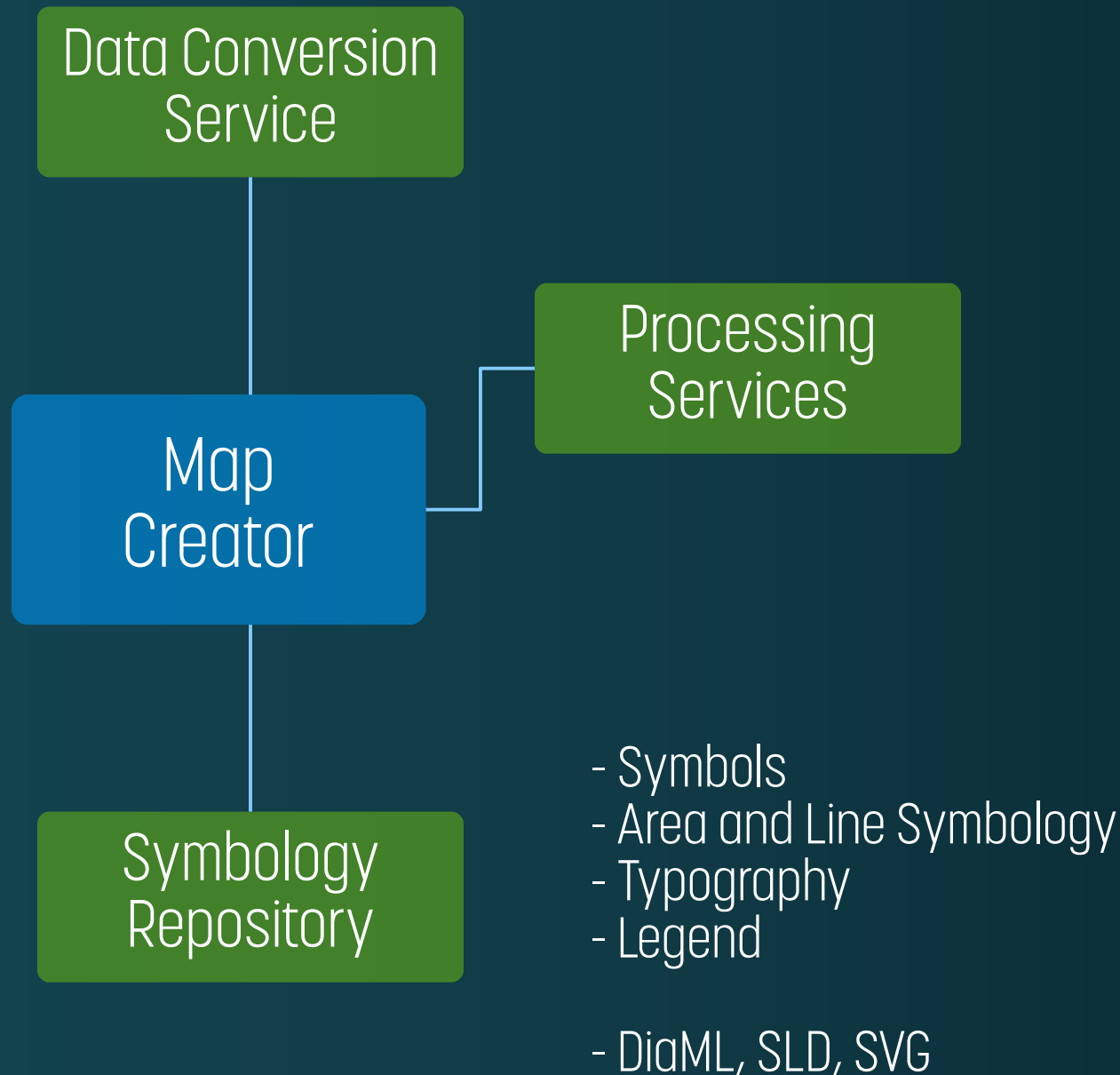


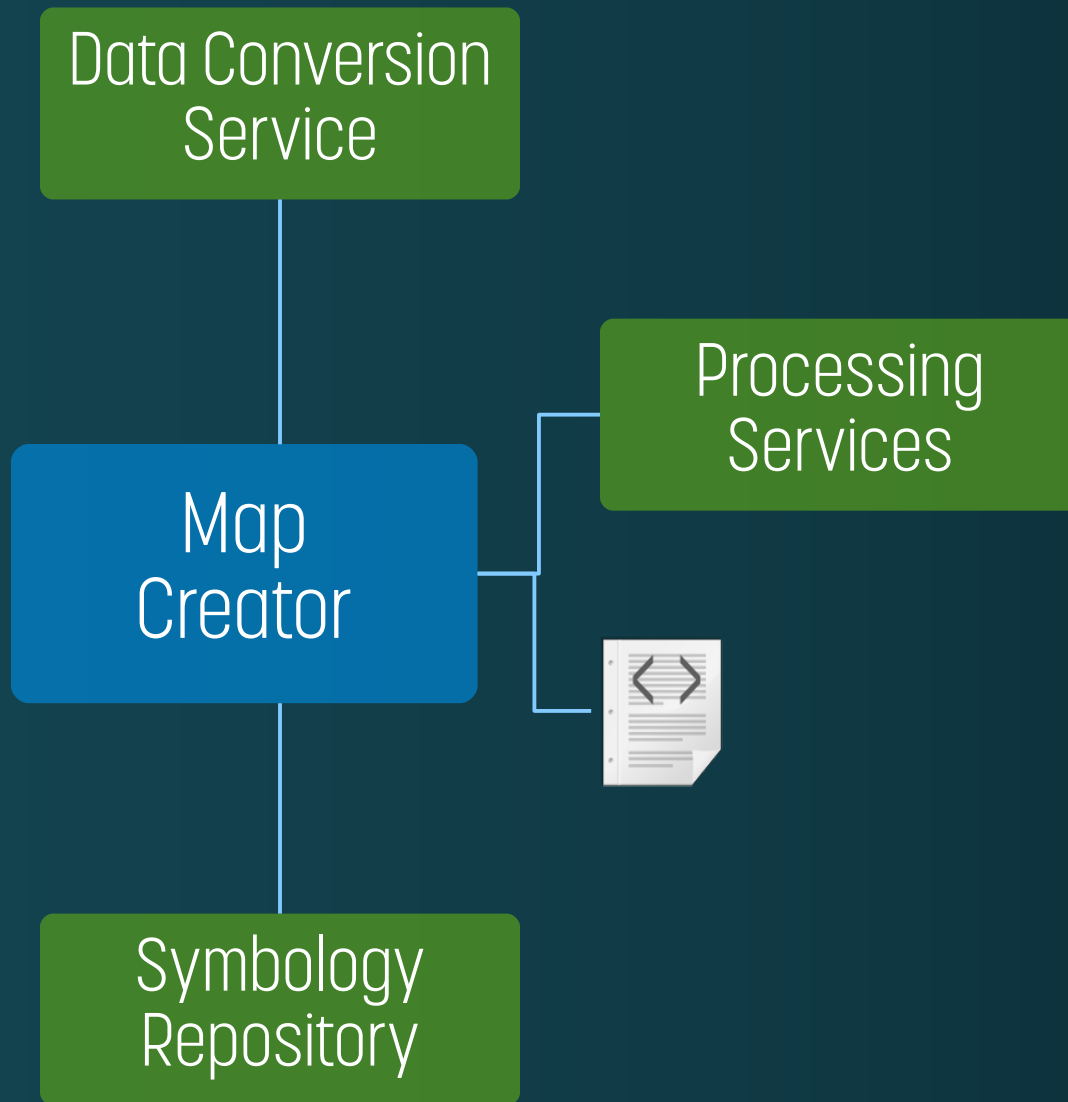
Data Conversion  
Service

- Different Sources
- Standard Format GML

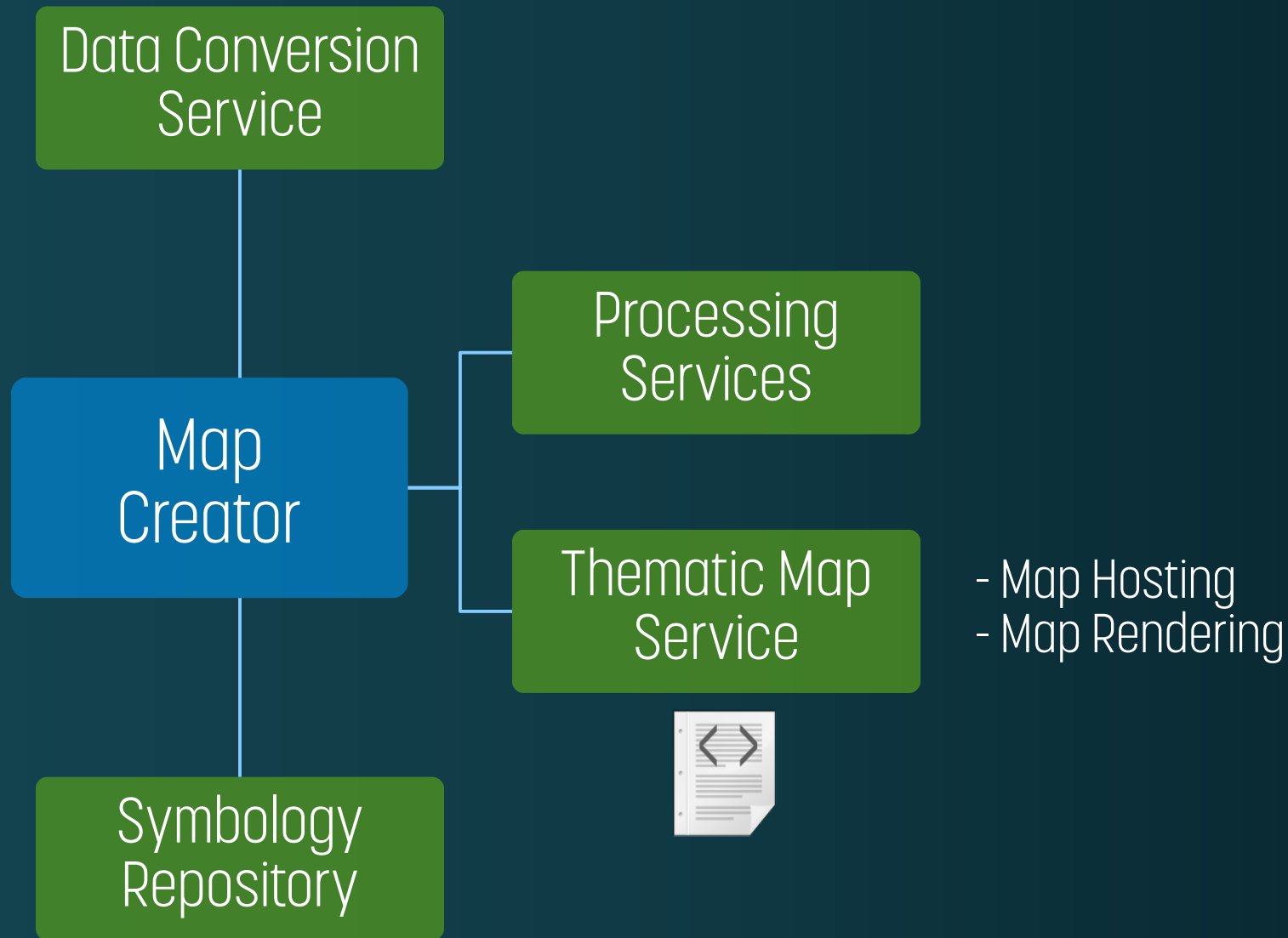
Map  
Creator

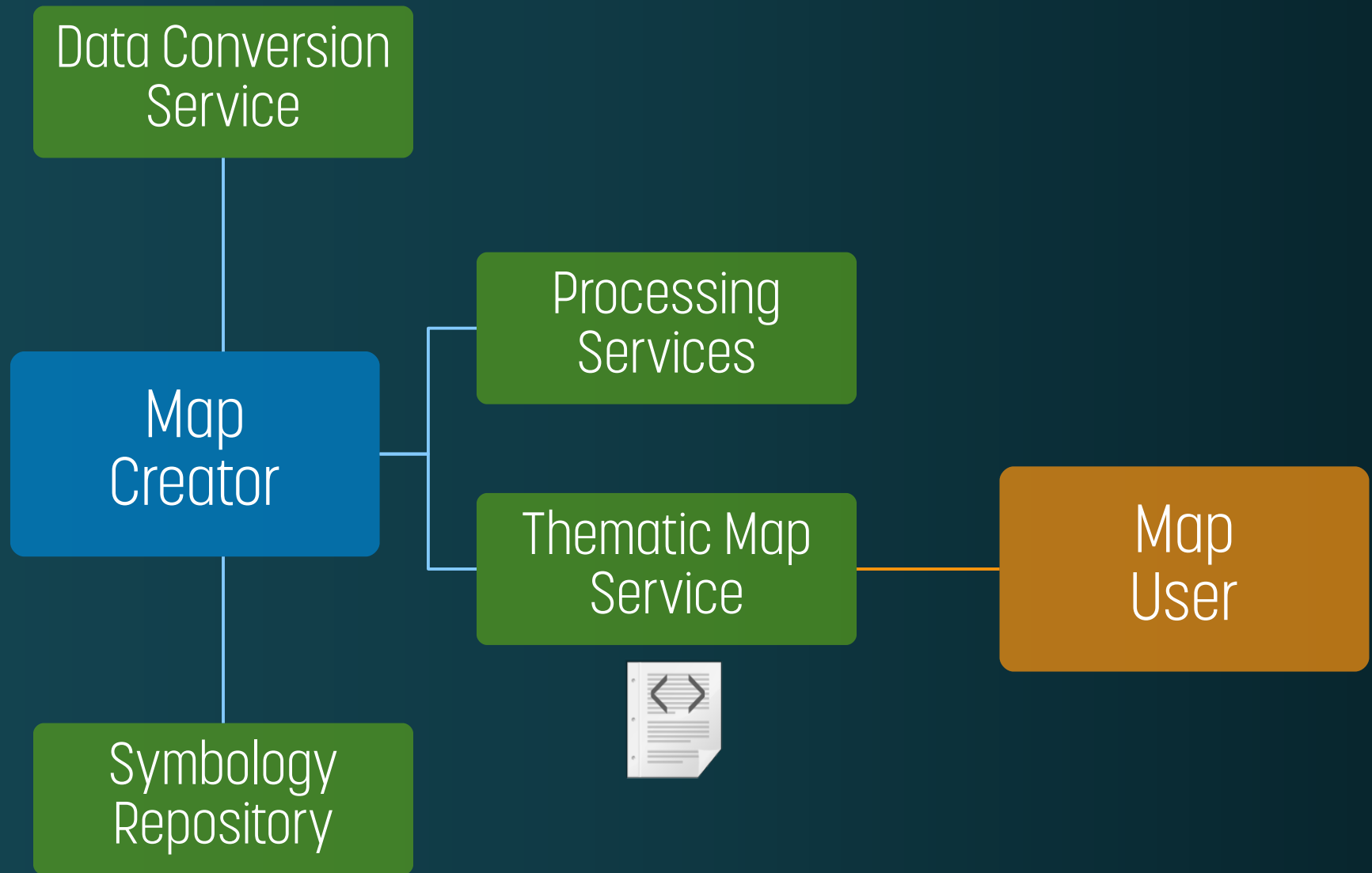


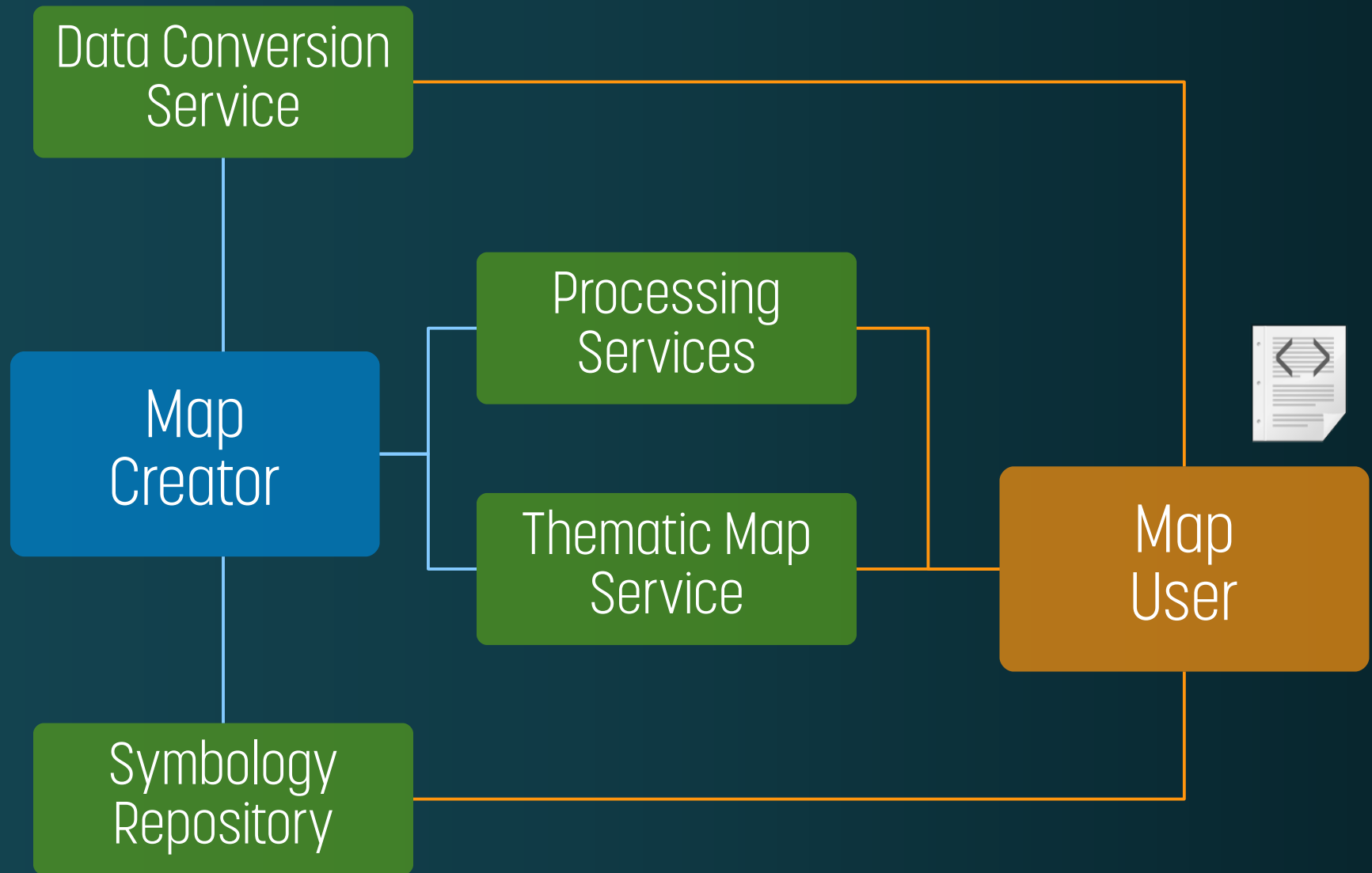


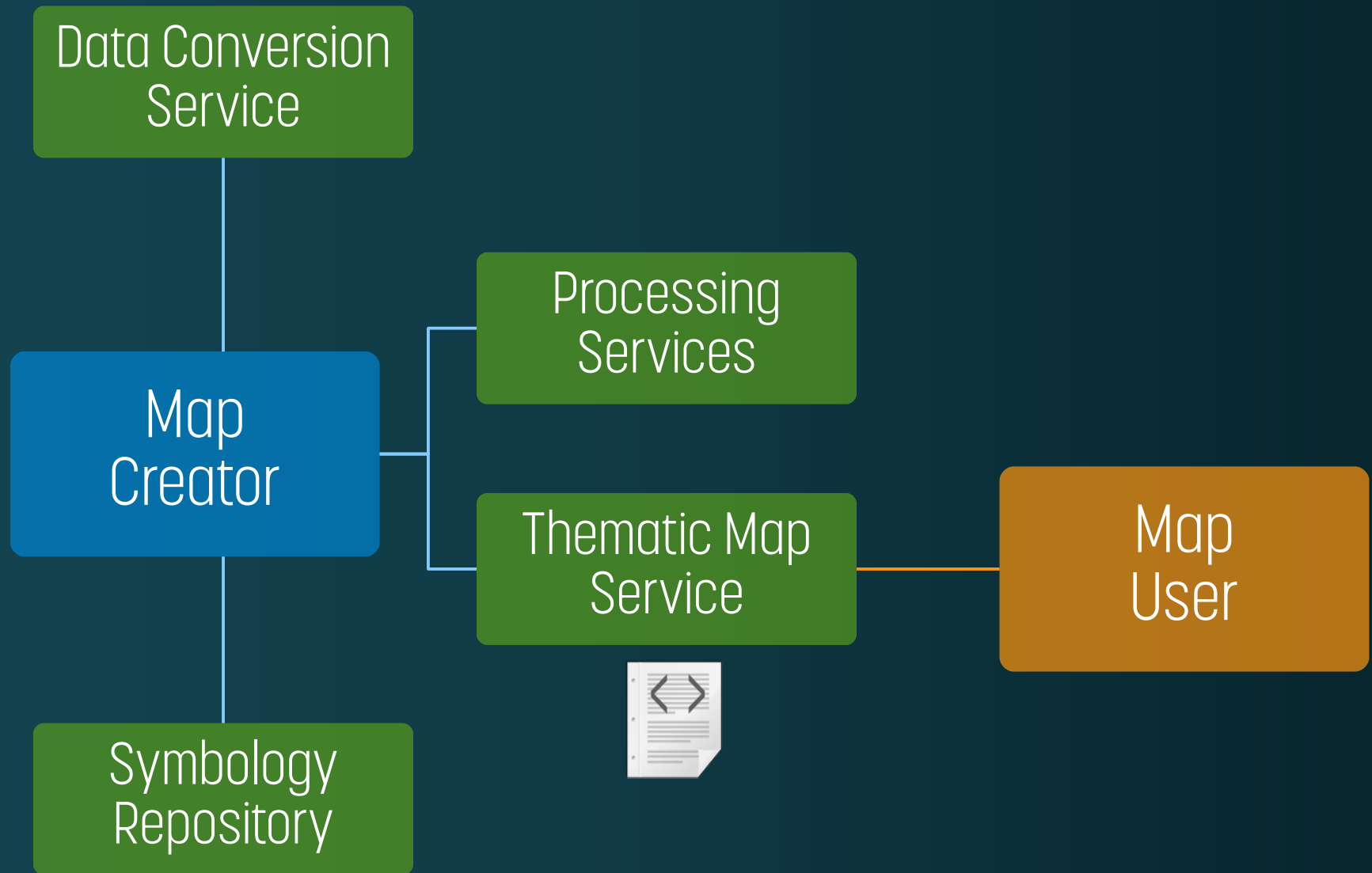












# OGC Web Services and Standards

Data Conversion  
Service

WFS

# OGC Web Services and Standards

Data Conversion  
Service

Processing  
Services

WFS

WPS

# OGC Web Services and Standards

Data Conversion  
Service

Processing  
Services

Symbology  
Repository

WFS

WPS

SLD/SE

# OGC Web Services and Standards

Data Conversion  
Service

Processing  
Services

Symbology  
Repository

Thematic Map  
Service

WFS

WPS

SLD/SE

WMS

WFS

CartoWS



# Main Benefits

## Interoperability



# Main Benefits

Interoperability

Interactivity

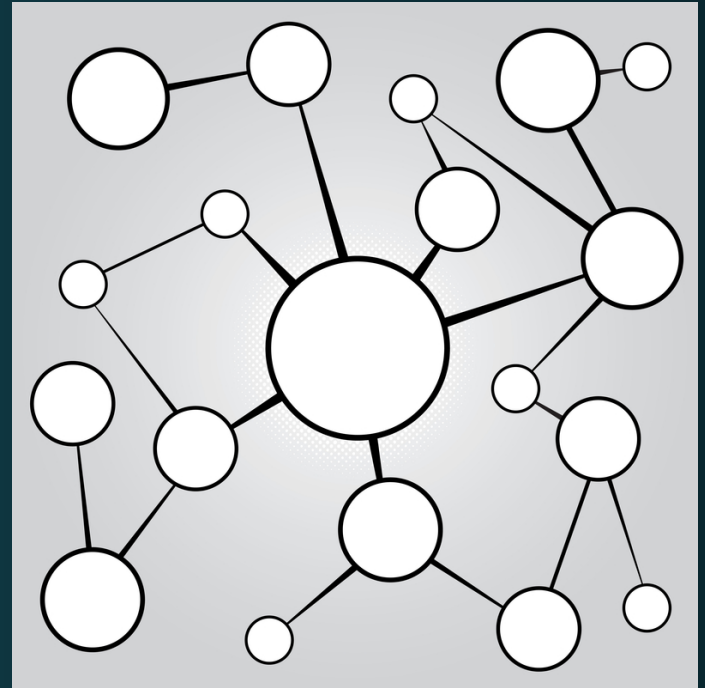


# Main Benefits

Interoperability

Interactivity

Integration in the Web  
and Automation



# Limitations

# Limitations

**Loading Time**  
**Computation Time**



# Limitations

**Loading Time**  
**Computation Time**



**Only 2D**



# Limitations

Loading Time  
Computation Time



Only 2D



Web Browser Limitations

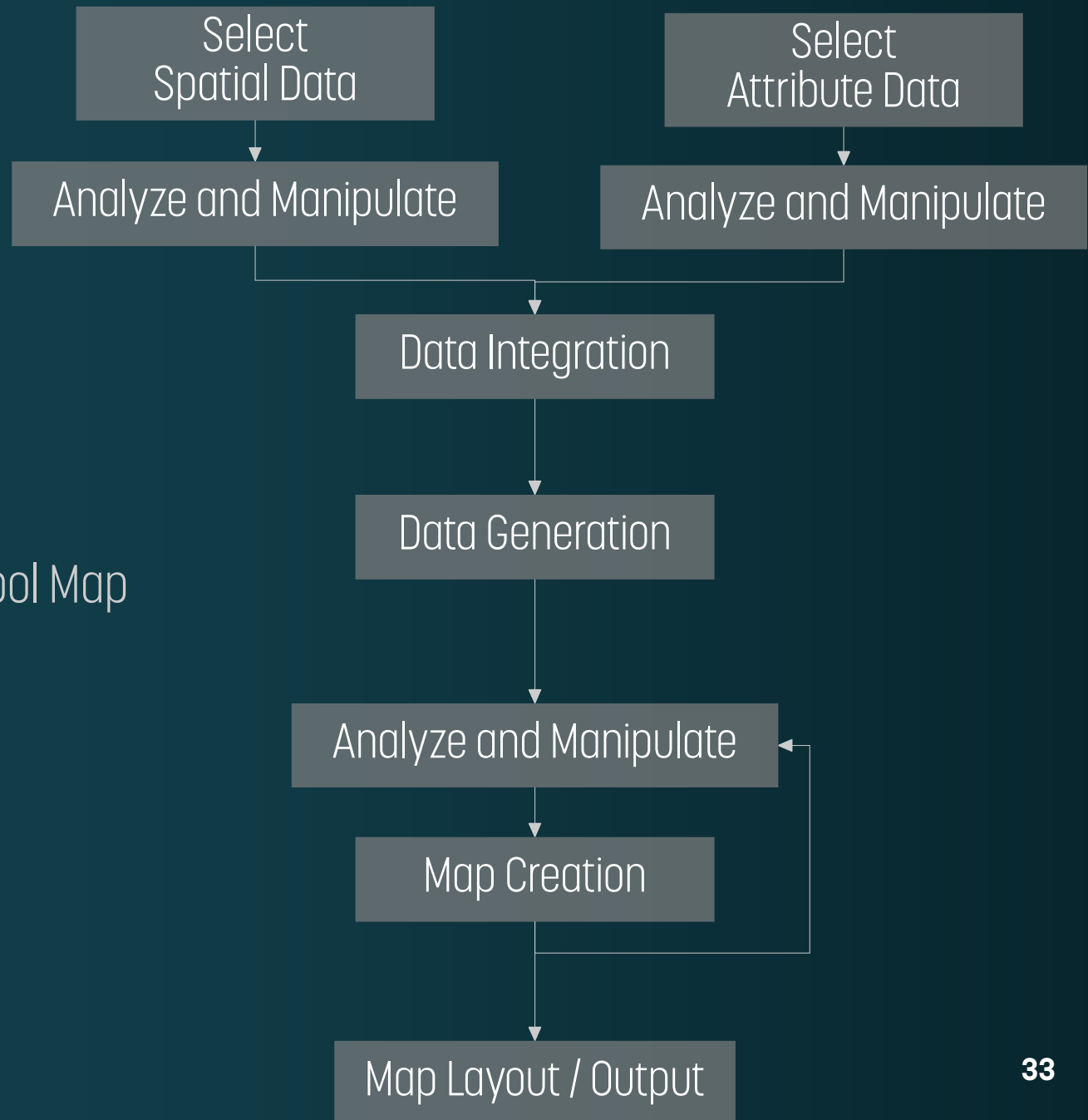


# Research Questions

Can the elements and the sequences of thematic cartography for the web be represented by one workflow?



- + Choropleth Map
- + Dasymetric Map
- + Dot Map
- + Proportional Symbol Map
- o Isarithmic Map
- o Cartogram
- Flow Map



# Research Questions

What are the elements and the sequence (work-flow) of thematic cartography on the web?

**Depends on mapping technique**

Can the thematic cartographic work-flow be modeled with a service-oriented architecture?

**Yes**

Are the existing standards and technologies sufficient for the implementation of the service-oriented architecture?

**No**

# Outlook

## Further research on:

- map description
- symbology description
- processing functionalities

# Outlook

## Further research on:

- map description
- symbology description
- processing functionalities

## Implementation of:

- service functionalities
- rendering functionalities

Q + A