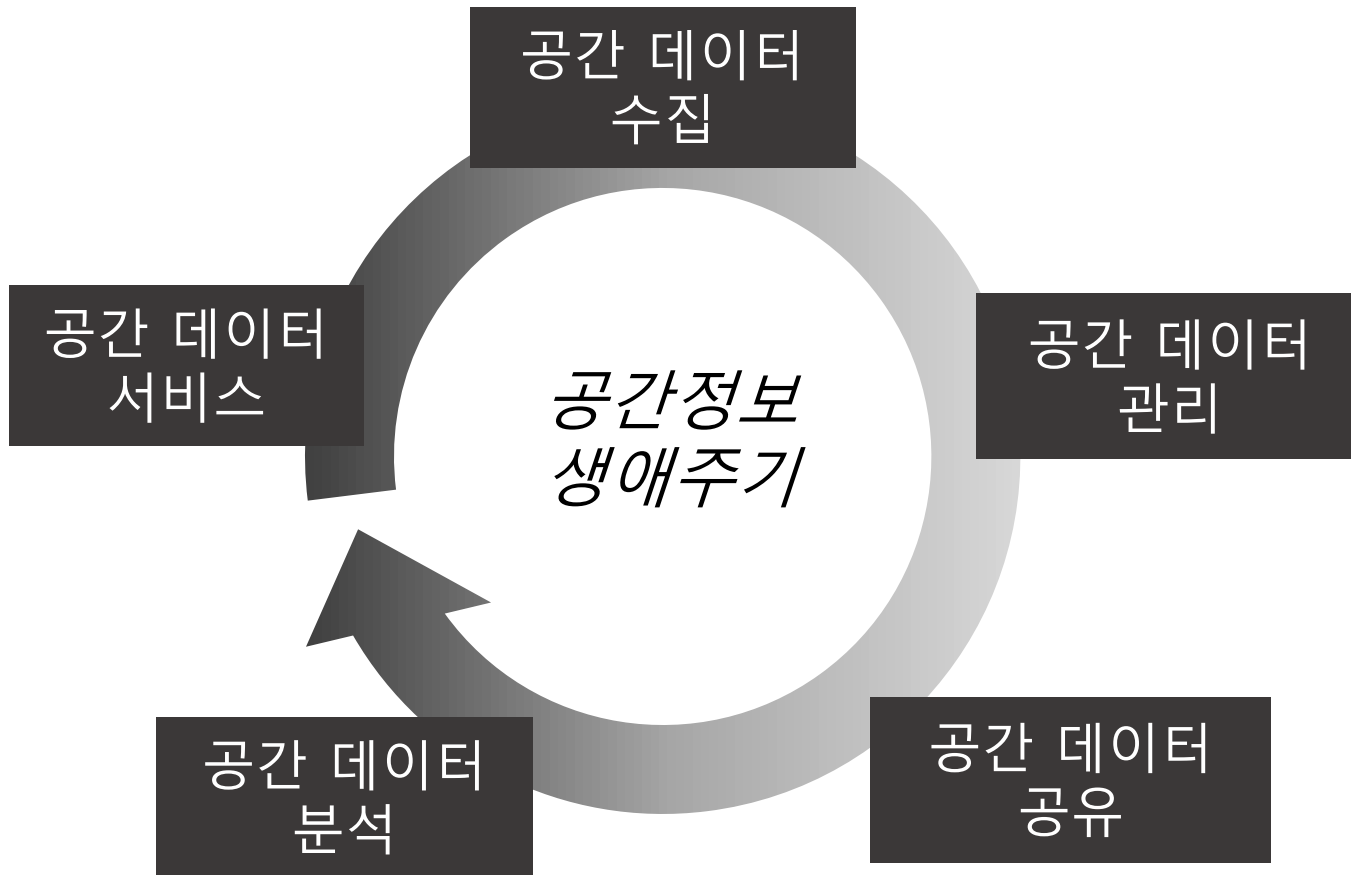


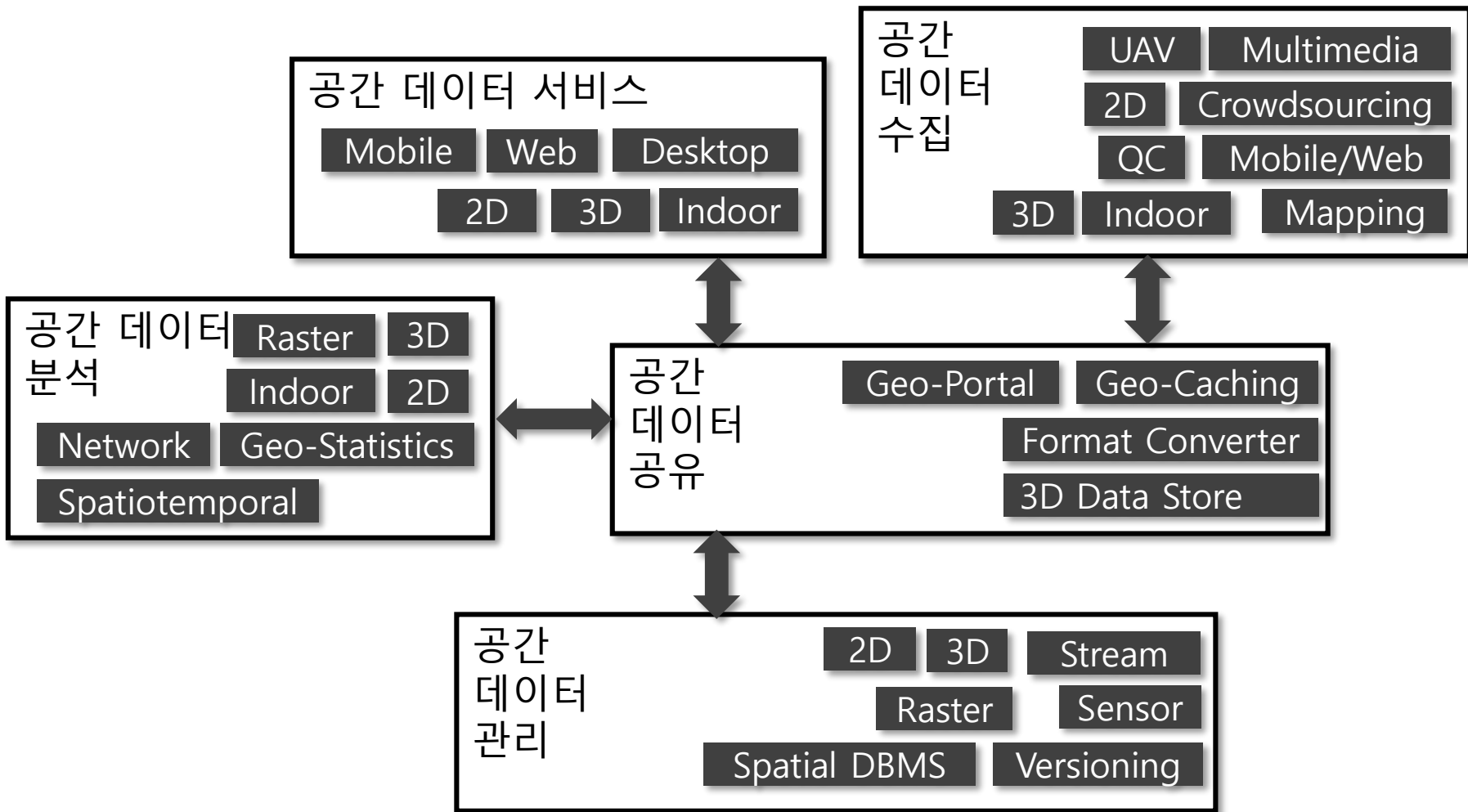
# 3D 실내공간 엔진 및 데이터 변환 도구

2016년 10월 19일

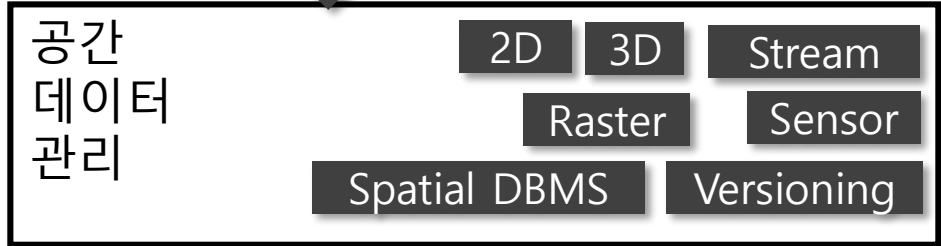
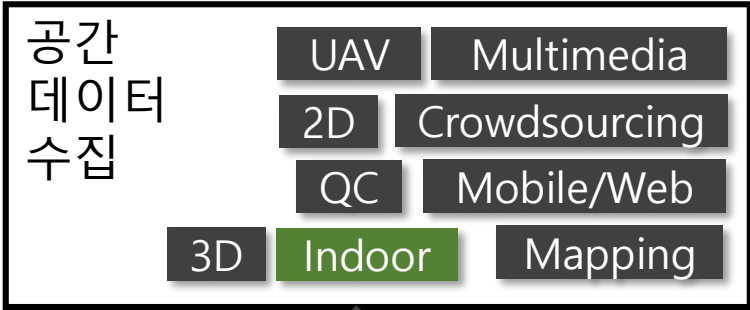
부산대학교 이 기준

# 개요










## Geo-Cloud 환경

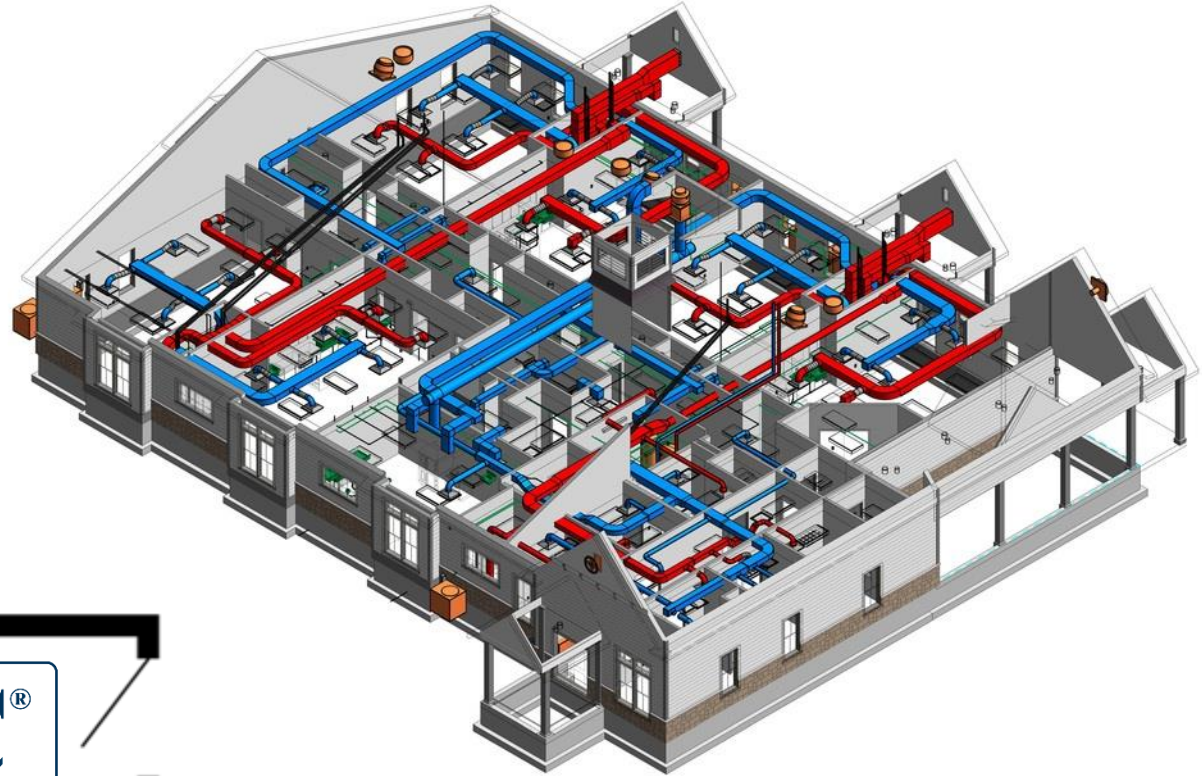


Geo-Cloud Environment

내용	관련 FOSS4G S/W	개발
3D 및 실내공간데이터 분석/처리		<ul style="list-style-type: none"> <li>• 3D 로 확장: 표현/분석</li> <li>• 실내공간 기능 장착: 표현/분석</li> </ul>
3D 및 실내공간데이터 서버		<ul style="list-style-type: none"> <li>• 3D GeoTools 이용 3D 서비스</li> <li>• Indoor GeoTools를 이용 실내 서비스</li> </ul>
실내공간데이터 (OGC IndoorGML) 구축 도구	 	<ul style="list-style-type: none"> <li>• 실내공간 국제표준인 OGC IndoorGML 데이터 편집도구</li> <li>• 2D/3D, 기하 및 연결 위상</li> </ul>
공간 데이터 변환 도구		<ul style="list-style-type: none"> <li>• 복잡한 객체의 변환 지원</li> <li>• GML – KML – GeoJSON 간의 변환</li> <li>• CityGML – IndoorGML 간의 변환</li> </ul>

# 3D 및 실내공간데이터 분석/처리/서버

**3D**

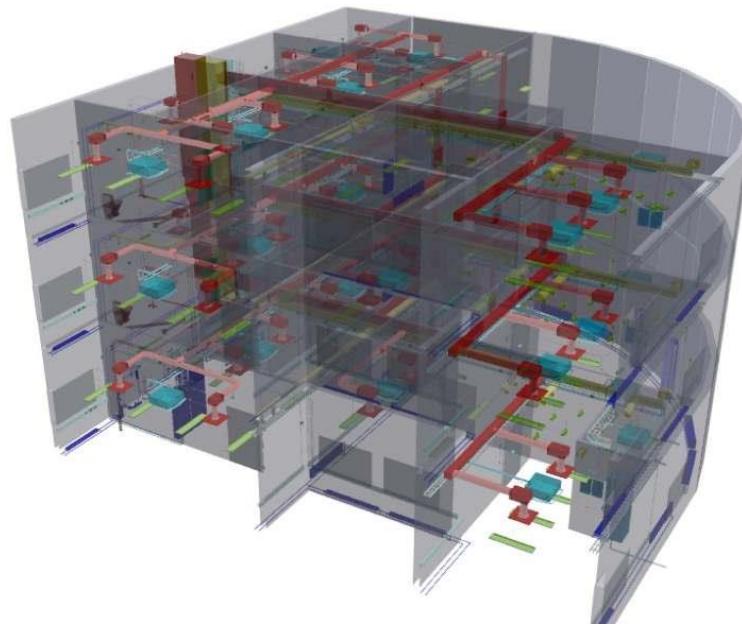
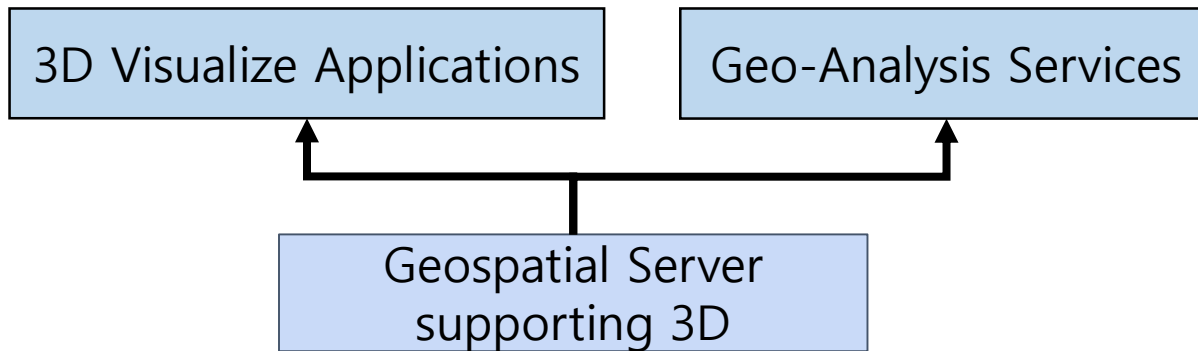


**Indoor**

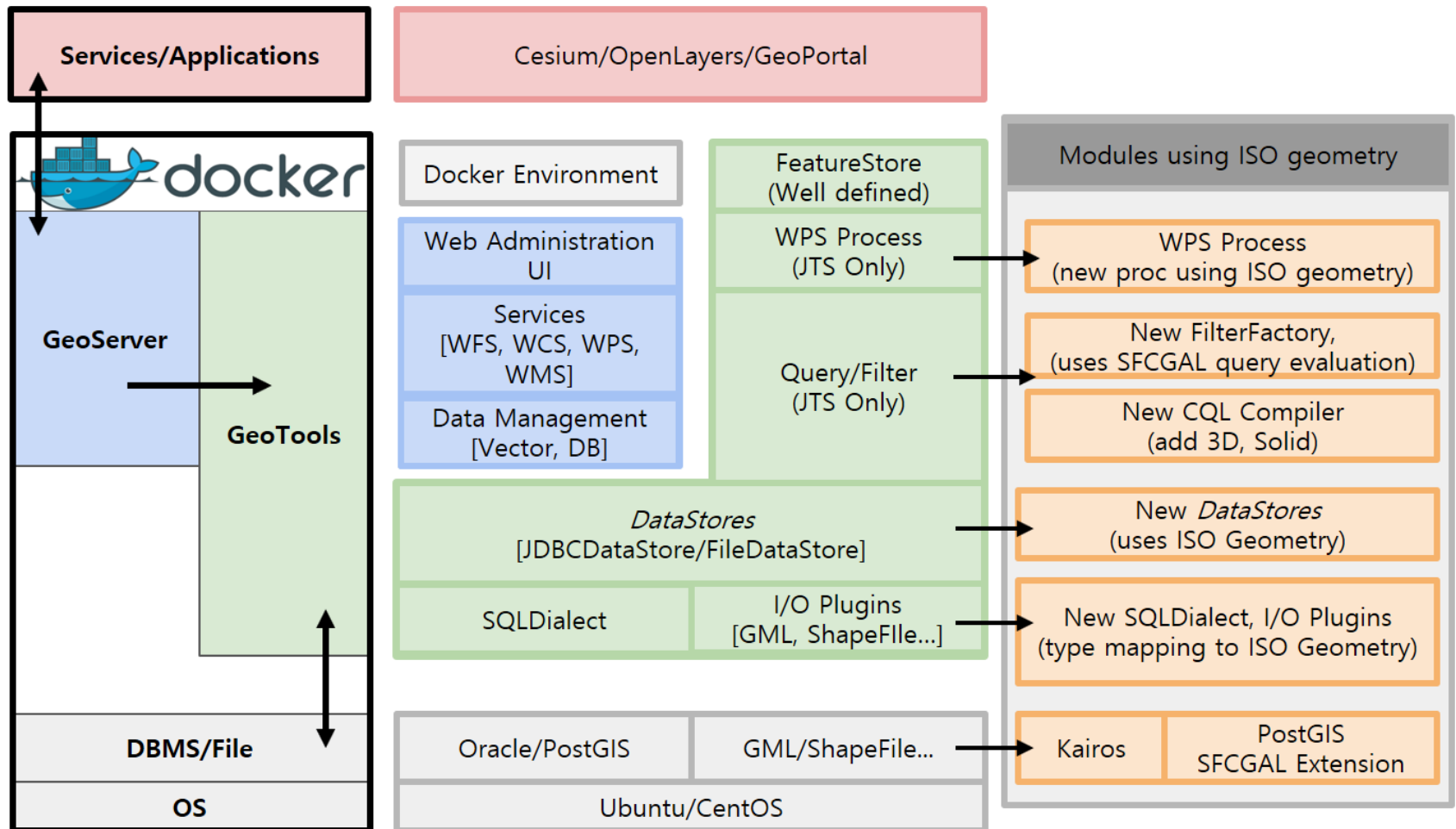




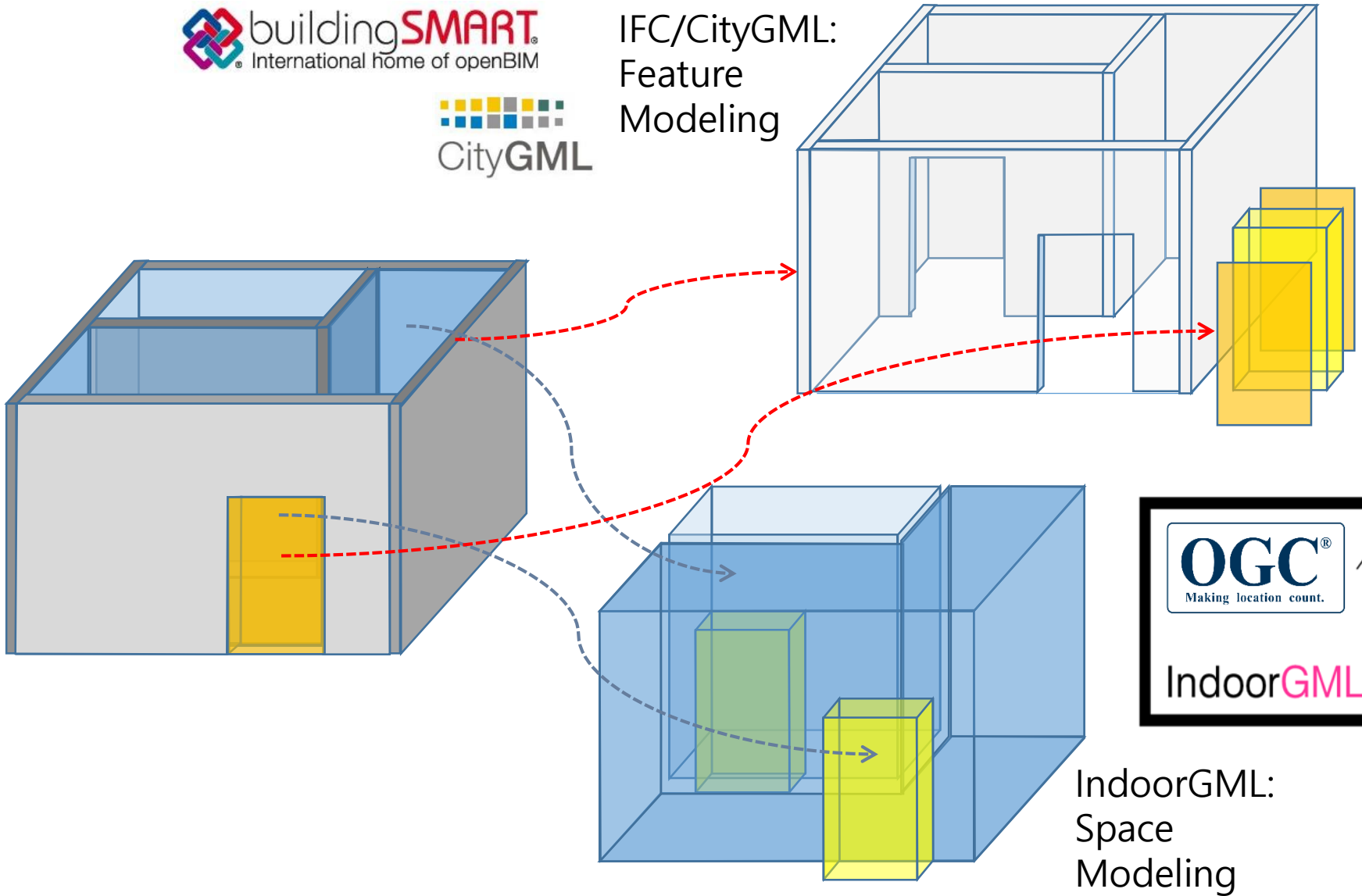
# 3D



# 3D



IFC/CityGML:  
Feature  
Modeling





## Cellular Space is

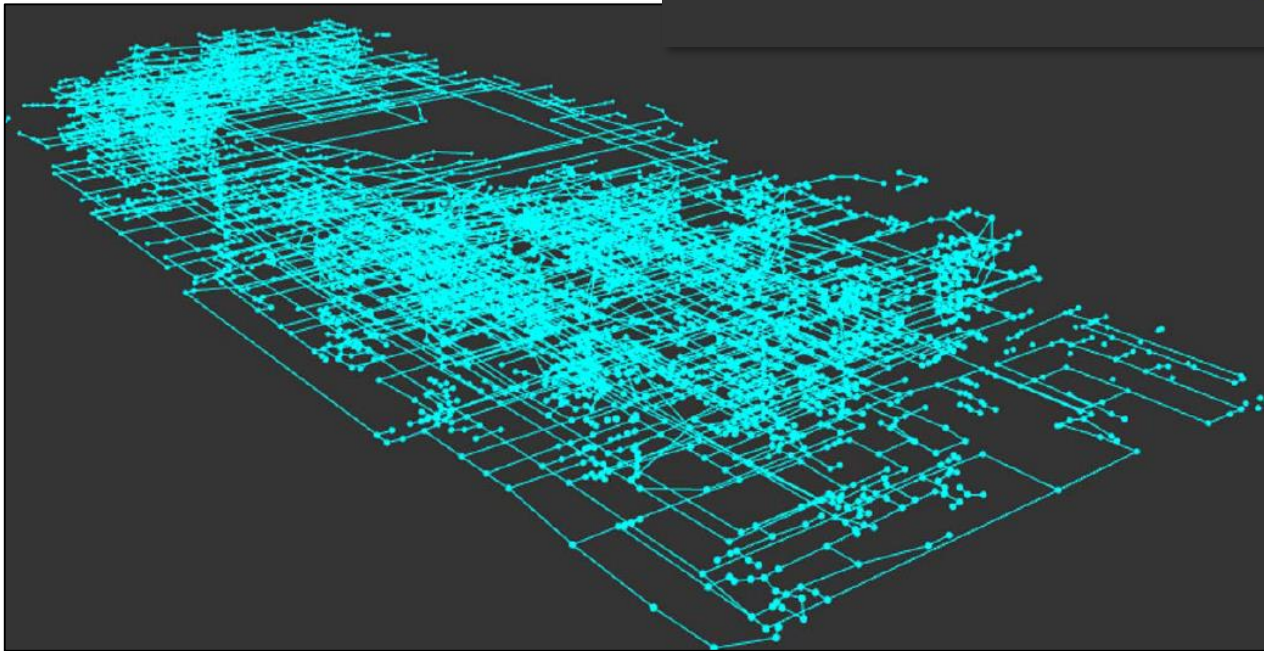
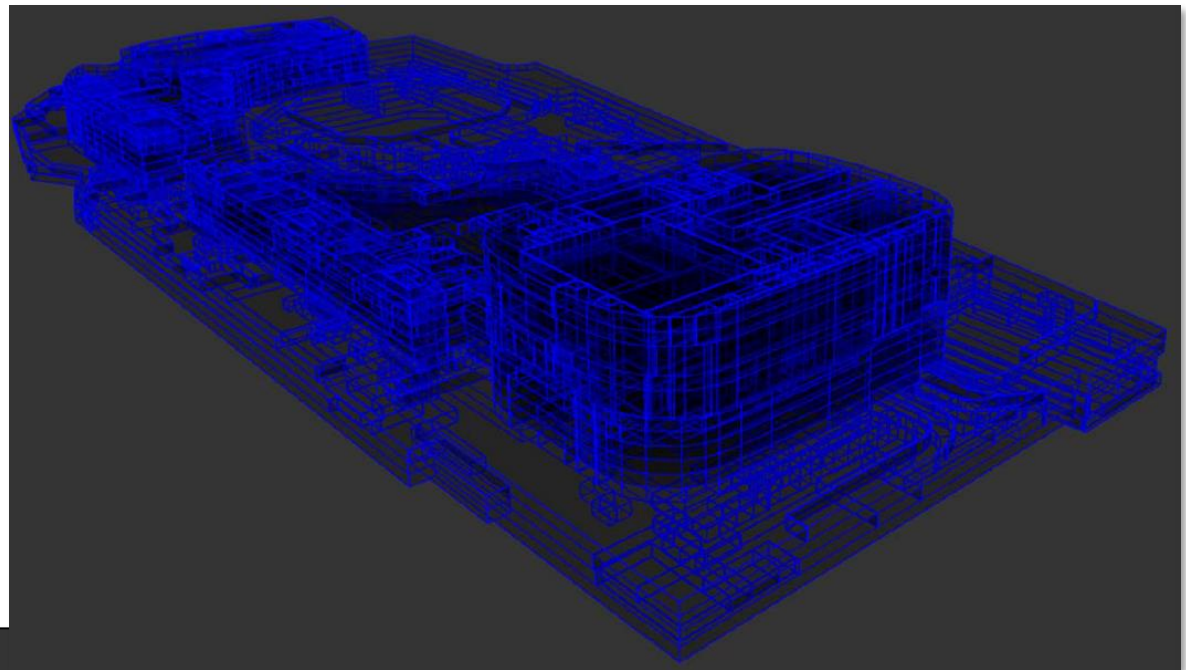
*a space defined as a set of cells*

- $C_i \cap C_j = \emptyset$  (non-overlapping cells)
- $\cup C_i \subseteq U$ , where  $U$  is the entire space (2D or 3D)
- Each cell has cell ID.

## 4 aspects of cellular space

- Geometry
- Topology
- Multi-Layered Structure
- Semantics





IndoorGML Demo – JINeditor (Java-based IndoorGML editor)

GitHub - <https://github.com/STEMLab/JInedit>

IndoorGML Demo – IndoorGML Viewer

GitHub - <https://github.com/STEMLab/IndoorGML-Viewer.git>



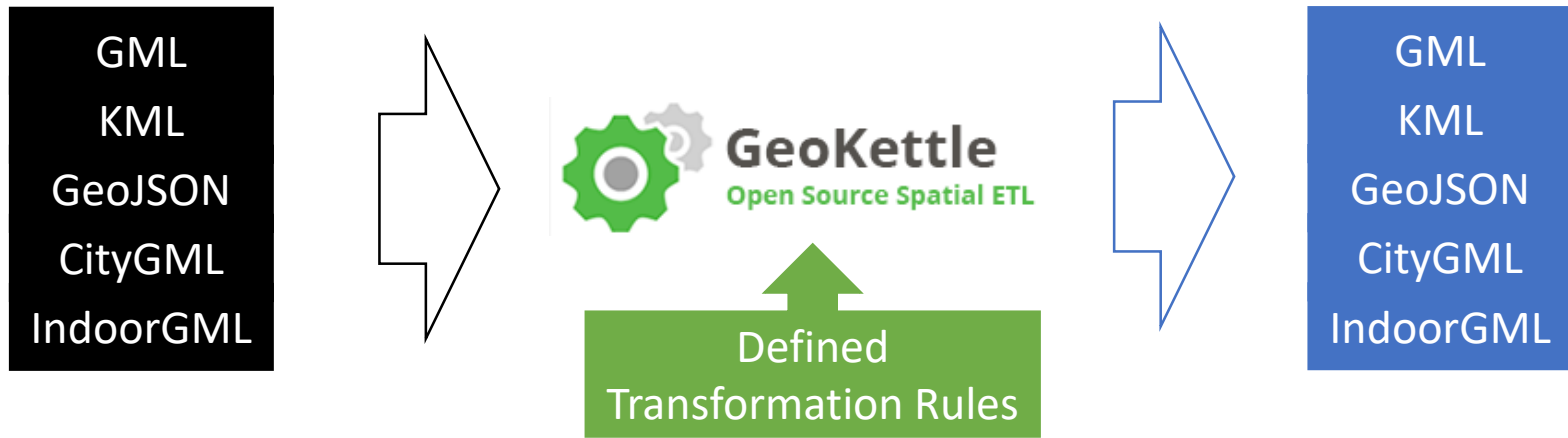
Official site

<http://www.opengeospatial.org/standards/indoorgml>

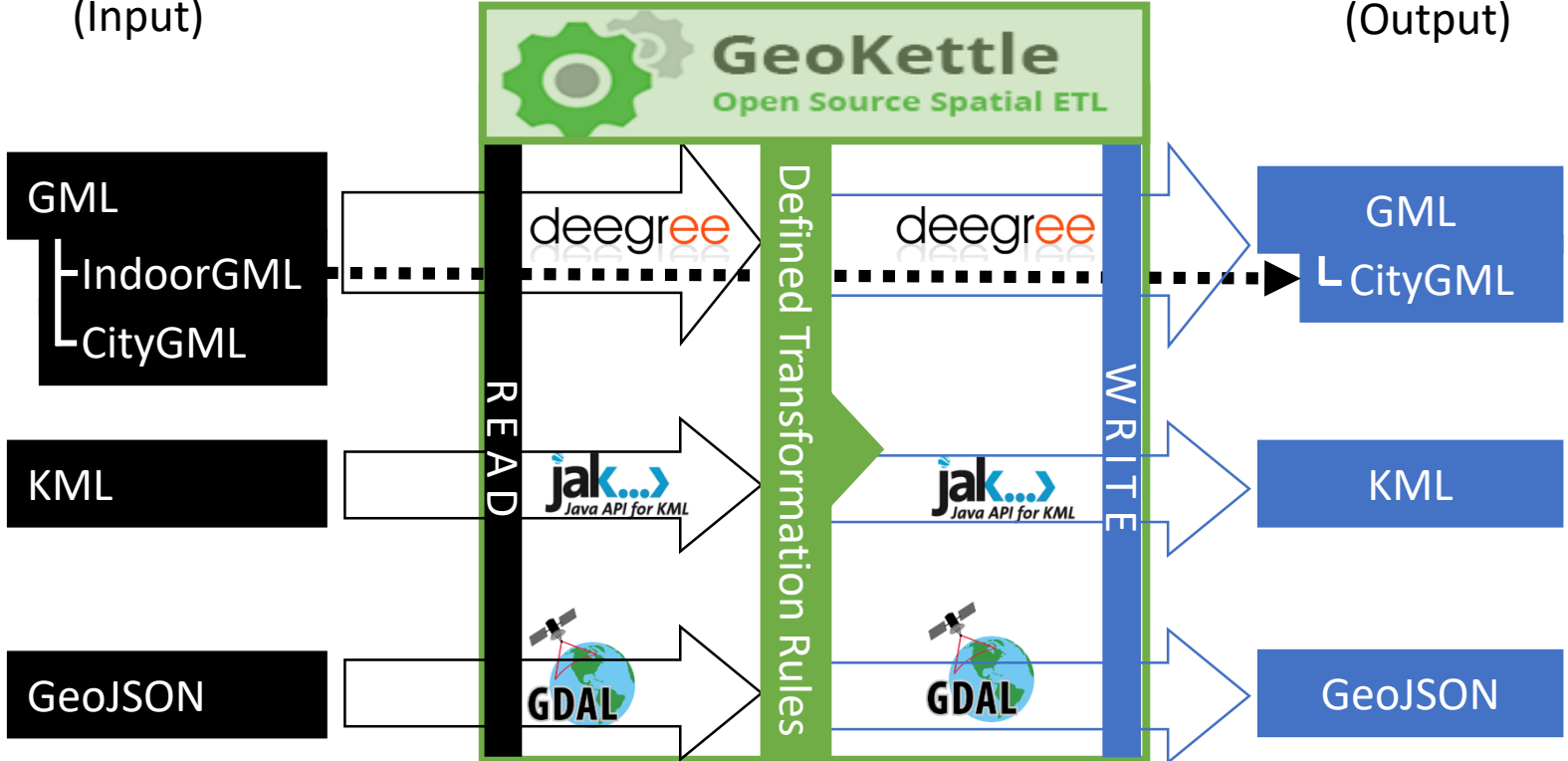
Resources are found at

<http://indoorgml.net>

# 공간 데이터 변환 도구












**GeoKettle**

Open Source Spatial ETL

Last Update : 2013.02 / 2.5 version

Vector geometry : based on JTS

Open Source	Support GIS standard formats	Currently GeoKettle supported version	Latest OpenSource supported version	Latest standard format version
	GML	3.1.1	3.2.1	3.3
	KML	2.2	2.2	2.3
	GeoJSON + various formats	1.0 (2008 GeoJSON)	1.0 (2008 GeoJSON)	1.0 (2016 GeoJSON - RFC 7946)

# 결론

