



Vita: A Versatile Toolkit for Generating Indoor Mobility Data for Real-World Buildings

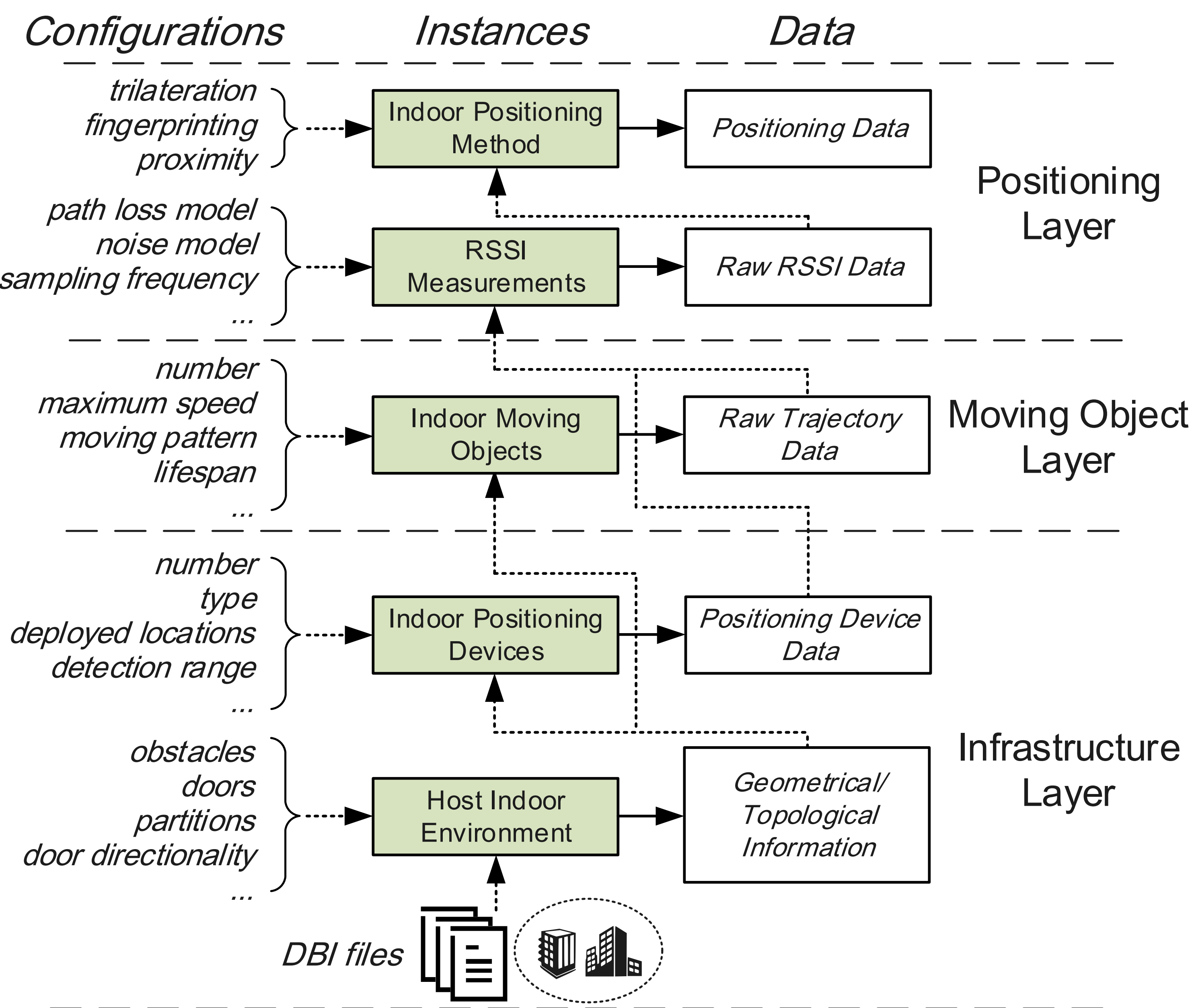
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GENERAL DATA FLOW FOR INDOOR MOBILITY DATA GENERATION



Analytics on indoor mobility data has emerged as a promising research frontier, the database community is still missing a synthetic data generator with important features.

- can simulate high volumes of indoor mobility data for evaluating location-dependent queries/algorithms assuming different indoor positioning technologies;
- can provide “ground truth” for the simulated data in spite of the discrete nature of the data (necessary for effectiveness studies).

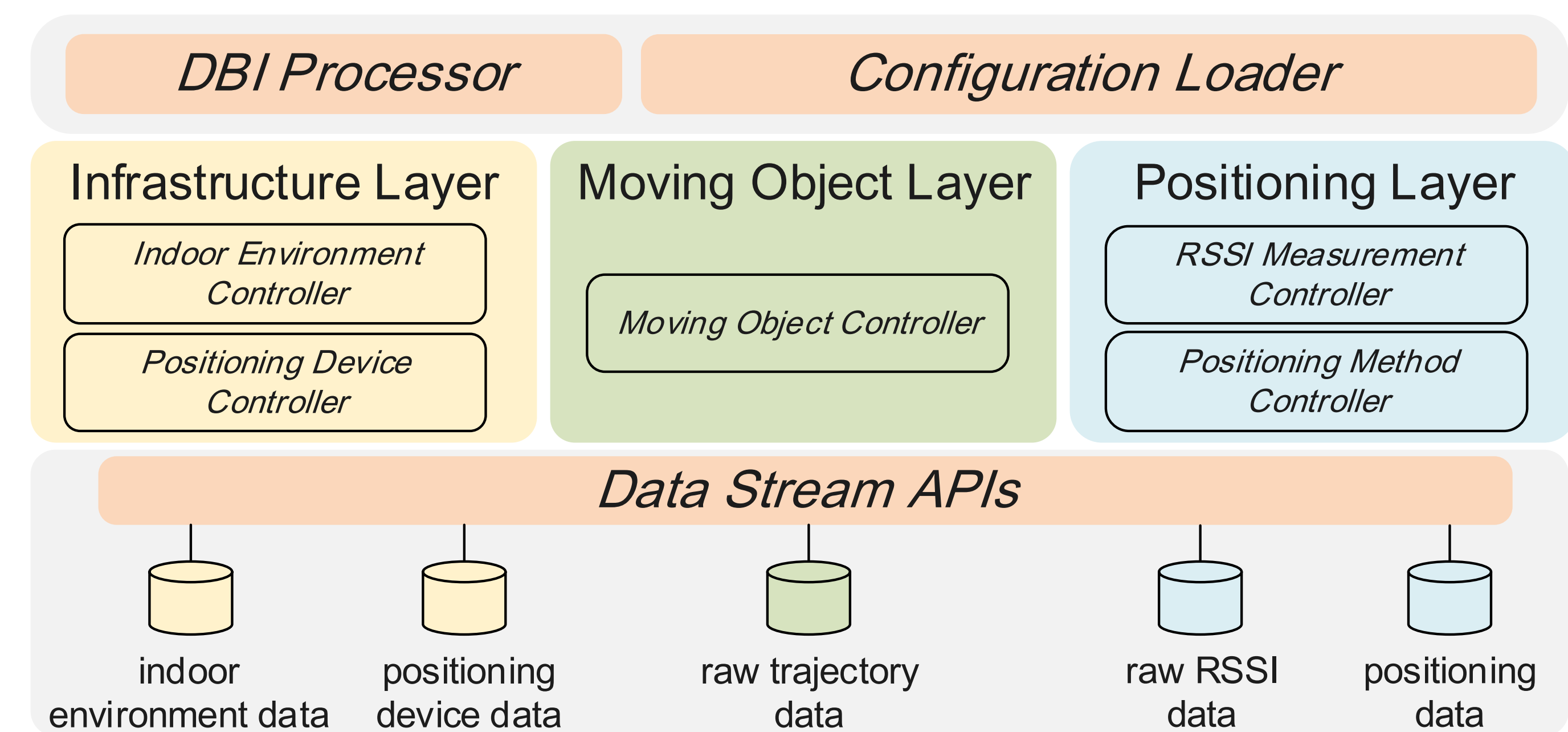
Industry-standard Building Designing Files as Input

Moving Patterns & Distribution Models for Generating Indoor Objects

Keep both the Mobility Data and the “Ground Truth” Trajectories

Supporting Multiple Indoor Positioning Algorithms

DESIGN



Interface

reads and extracts the meta-data from user's input

Producer

receives meta-data from the Interface, produces specific types of data, and exchanges them with the Storage at relevant layers

Storage

serves as both the data provider and data keeper

DEMONSTRATION

The screenshot shows the Vita system interface, which includes a DBI Processor and a User Configuration Loader.

DBI Processor:

- Floor: Floor1
- Entity Name: (empty)
- Connected partitions: 2.1.23, 2.1.16, 0.1.96B

User Configuration Loader:

- Infrastructure: (selected)
- Moving Object: (selected)
- Positioning: (selected)
- Export: ☐ Trajectory ☐ raw RSSI
- Moving Object Type: Destination
- Initial Distribution: ClusterOutlier
- Maximum Object Number: 2 (in a partition)
- Maximum Velocity(m/ms): 0.1 (step len) 100 (move rate)
- Maximum Life Span(s): 7200
- Buttons: Init, Start, Stop, Pause



System Website.



A Demo Video.