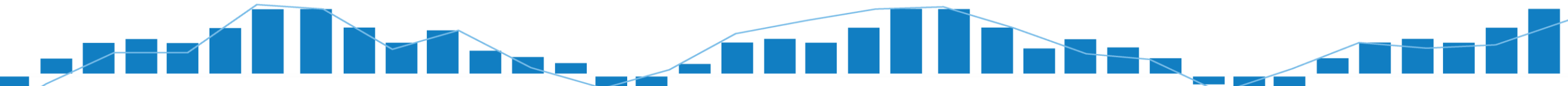
Spatial Data – Looking Outside The Map

Hope Foley

BLUE GRANITE
BUSINESS INSIGHT. DELIVERED.

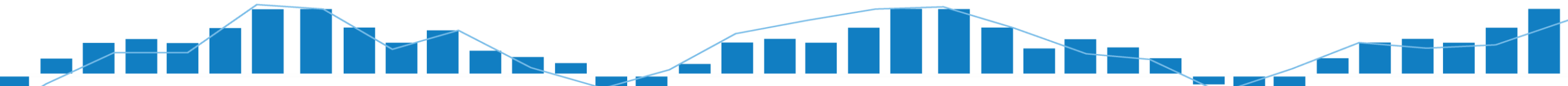
About Me

- Wife, mom, and all around mover and shaker
- Microsoft SQL Server MVP
- Business Intelligence Consultant/DBA background
- MCITP 2005/2008 Database Administration
- SQL Server consultant for 6 + years
- Lover of good beer



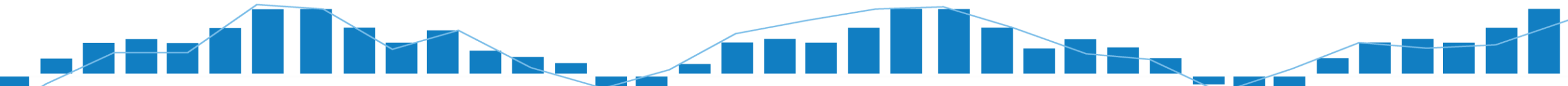
Agenda

- Overview of spatial data
- View examples of spatial data
- Explore some functions
- Dig in with real world demo of geometry
- Wrap up and questions



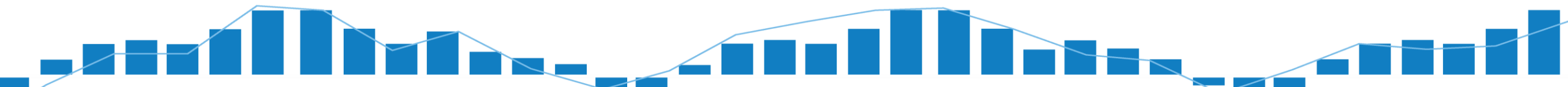
What the heck is spatial data?

- Dictionary definition: Also known as geospatial data or geographic information it is the data or information that identifies the geographic location of features and boundaries on Earth, such as natural or constructed features, oceans, and more. Spatial data is usually stored as coordinates and topology, and is data that can be mapped. Spatial data is often accessed, manipulated or analyzed through Geographic Information Systems (GIS).



What the heck is spatial data?

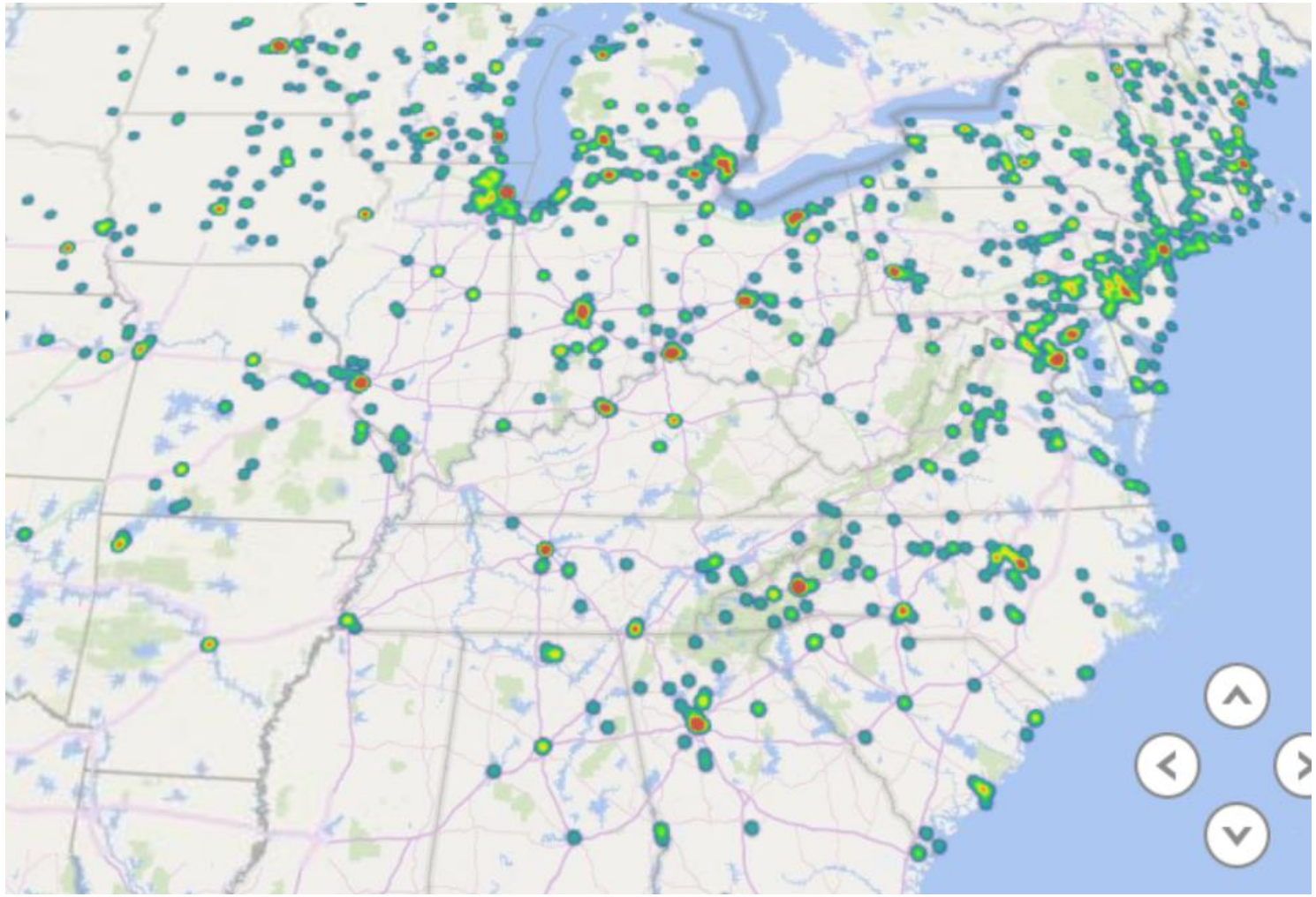
- My definition: the laying out of shapes on a "map"



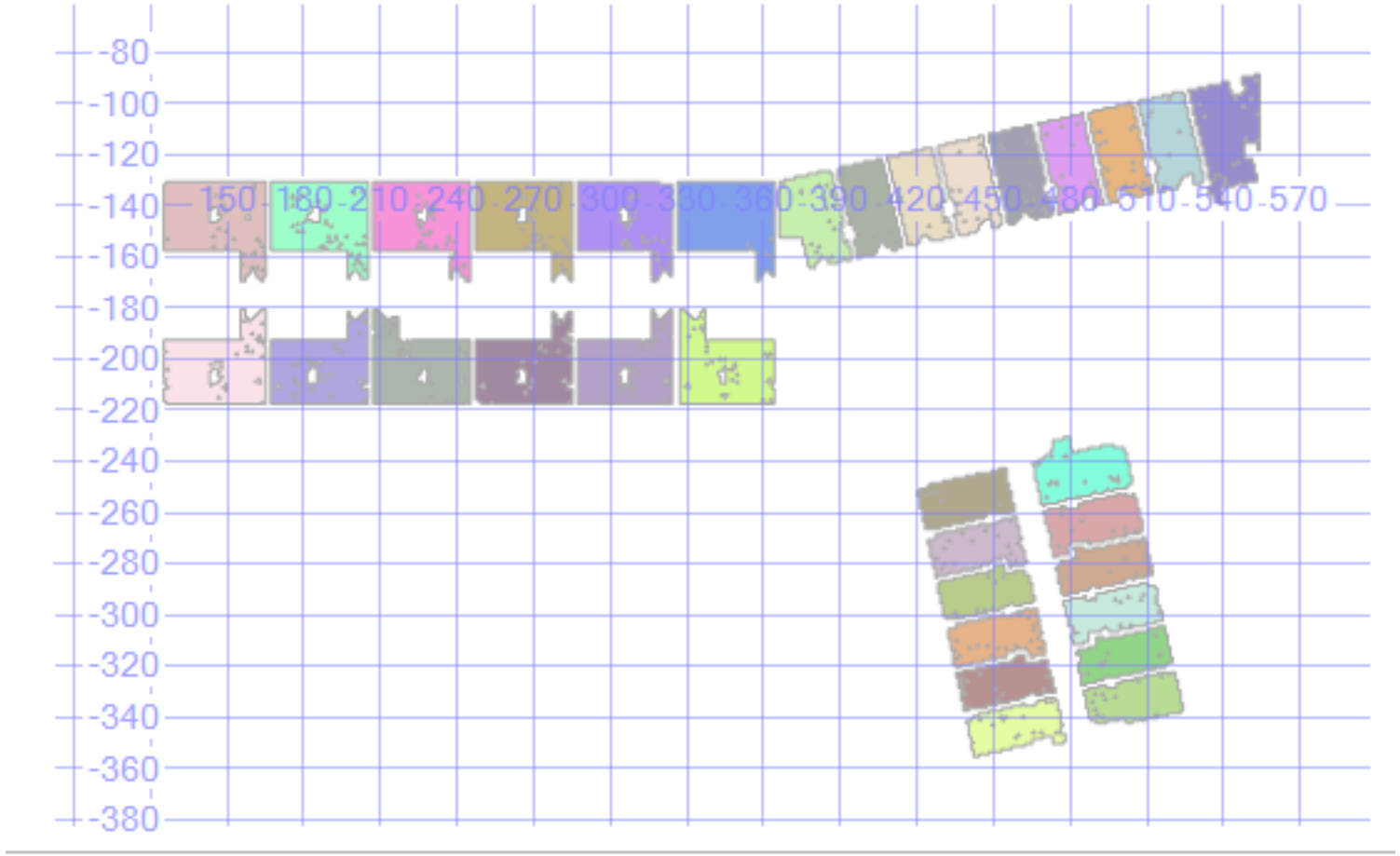
Why the "map"?


Cedar Rapids
Naperville
Chicago
Detroit
Aurora
Gary
South Bend
Toledo
Joliet
Fort Wayne
ILLINOIS
INDIANA
OHIO
Springfield
Indianapolis
Dayton
Columbus
Cincinnati
St Louis
Louisville
Evansville
Frankfort
Lexington
100 km
85 mi

Why the "map"?



Why the "map"?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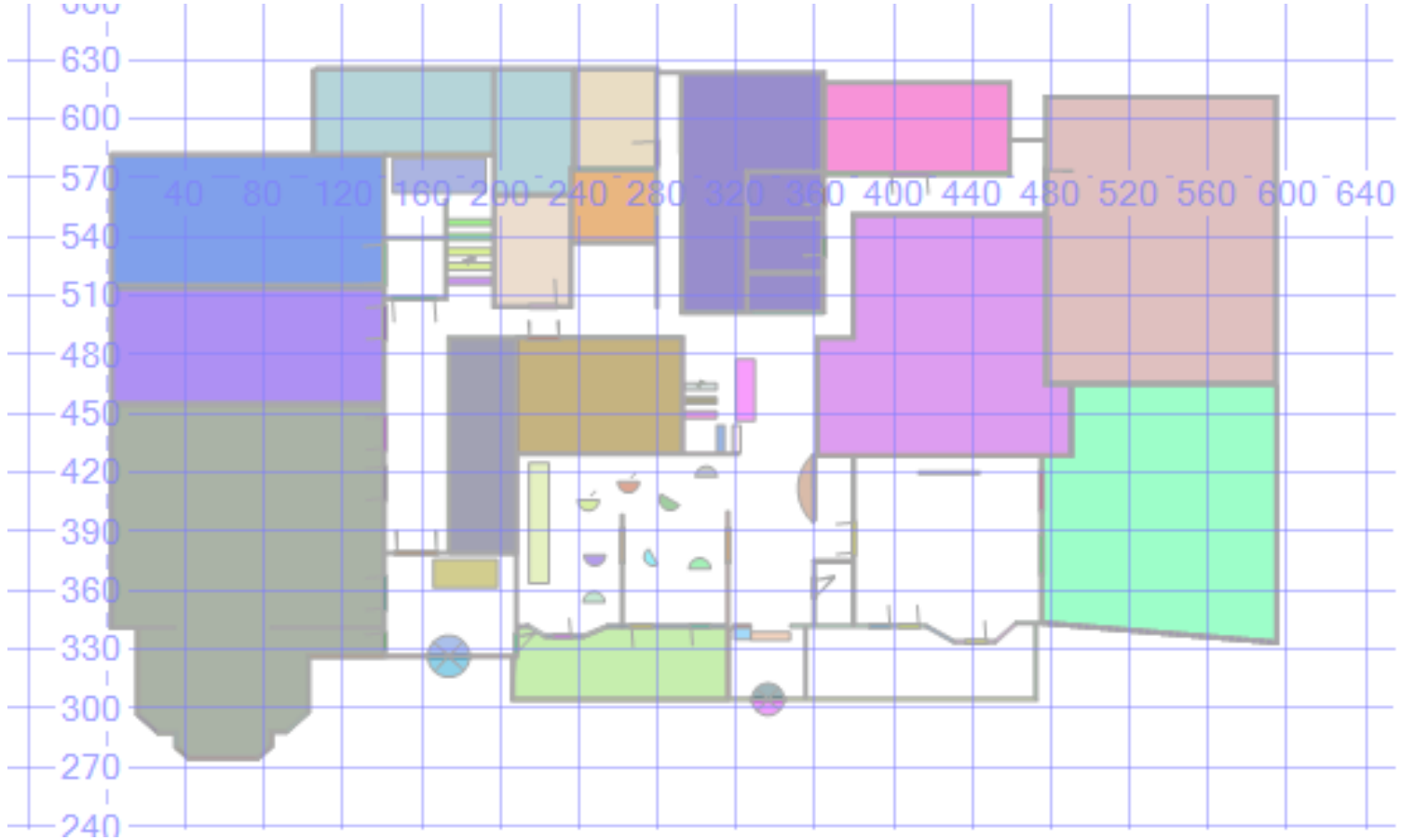
Why the "map"?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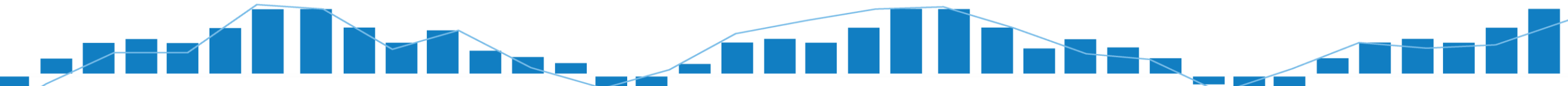
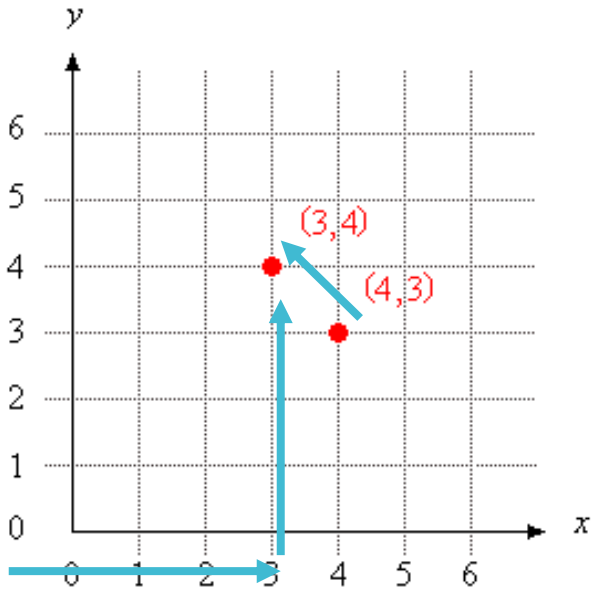
Spatial data comes in 2 flavors

- Geometry – grid/flat (flat map and objects, floor plans)
- Geography – round earth (latitude/longitude)



And that's important because??

Ready to go old school?



SQL Server spatial data uses grids too. Examples:

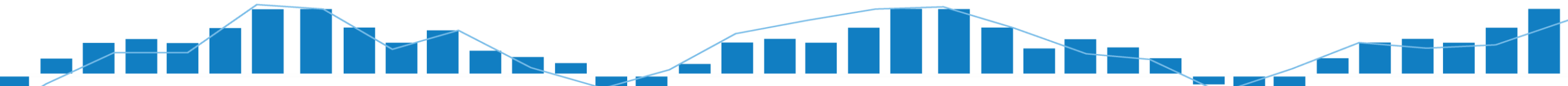
```
POINT (3 4)
```

```
LINESTRING(4 3,3 4)
```

Shapes

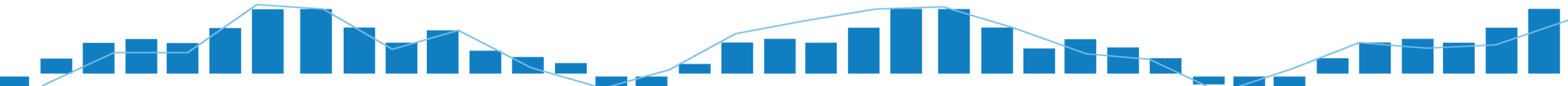
- Point: an exact location identified by X & Y coordinates
- Can also have Z -> elevation
- Can also have M -> Measure

- LineString: A path between a sequence of points.
- Polygon: A closed 2 dimensional shape defined by a ring.



Methods/ functions

- STGeomFromText
- STLength
- PARSE
- STArea
- STEnvelope
- STDifference
- BufferWithCurves
- ShortestLineTo



Demo Setup

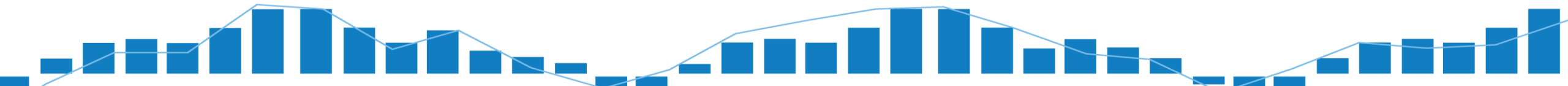
Business Info

Plaza del Hope has

- CAD file from the construction of hotel
- Normal run of mill hotel data

Business needs

- Better reporting on room blocks/hotel guests



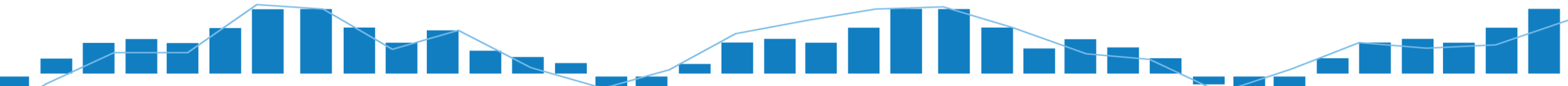
Demo Setup

Prep work

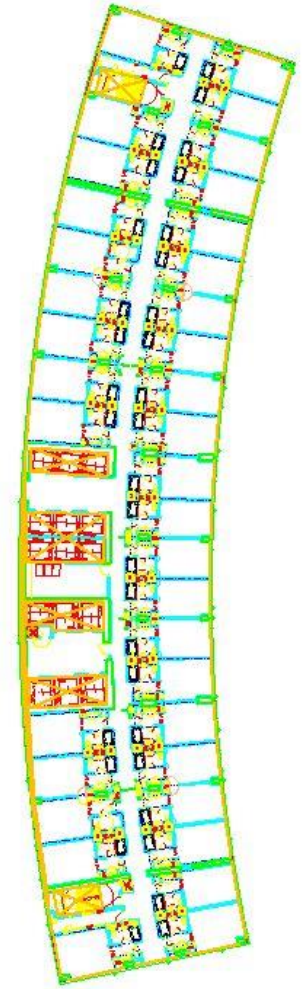
- Get the CAD file in a workable state (shapefile) to import into SQL Server (ESRI – ArcGIS for Desktop)
- Import data into SQL Server spatial data type (OGR2OGR)

```
ogr2ogr -f "MSSQLSpatial“
"MSSQL:server=localhost; database=
OutsideMapSpatial;trusted_connection=yes;"
"C:\Polyline_FeatureToPolygon.shp“ -a_srs
   "EPSG:2249" -  progress
```

- Create a connection to data (spatial data type to ID/Room number)



Demo Setup



Resources

Michael J Swart spatial art

http://michaeljswart.com/2010/02/more-images-from-the-spatial-results-tab/

ArcGIS for Desktop Tool:

http://www.esri.com/

Pro Spatial with SQL Server 2012 (book) by Alastair Aitchison

http://www.amazon.com/Pro-Spatial-Server-2012-ebook/dp/B0089NVTOG/ref=sr_1_1?ie=UTF8&qid=1381151306&sr=8-1&keywords=alastair+aitchison

OGR2OGR patterns for SQL Server (Alastair Aitchison)

http://alastaira.wordpress.com/ogr2ogr-patterns-for-sql-server/

Installer for OGR2OGR

http://trac.osgeo.org/osgeo4w/

PowerBI

- http://blogs.msdn.com/b/powerbi/archive/2014/10/07/5-minute-tutorial-for-creating-custom-maps-with-excel-and-power-map.aspx

Thank You!!

Thank you so much! Would love feedback on presentation

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