




Boundless State of GeoGig

The Main GeoGig Team



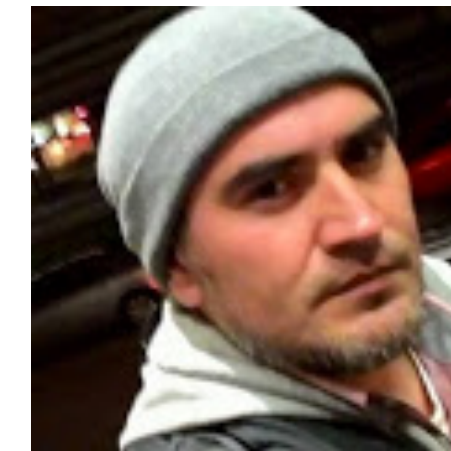
David Blasby
 Boundless




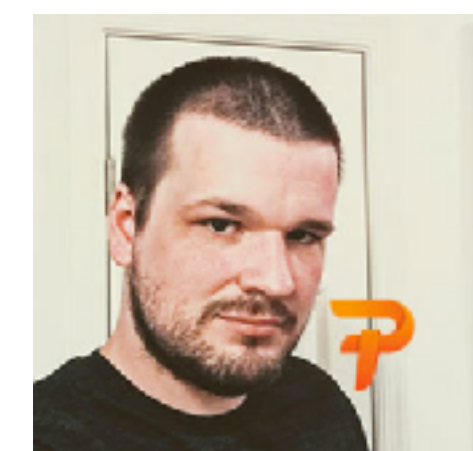
Hannah Bristol
 Boundless




Erik Merkle
 Boundless




Gabriel Roldan
 Boundless

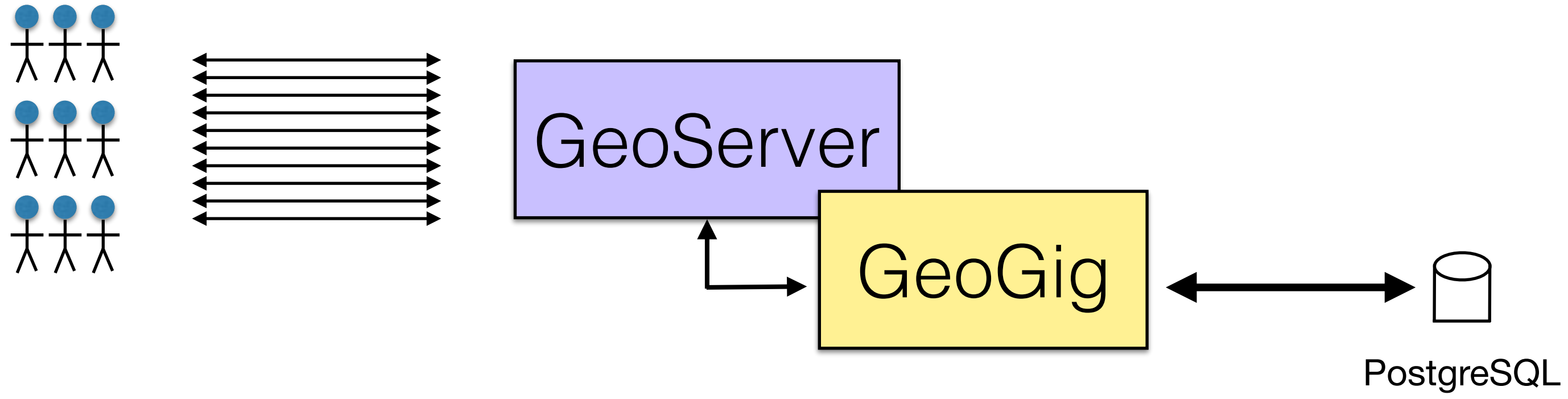


Johnathan Garrett
 Prominent Edge

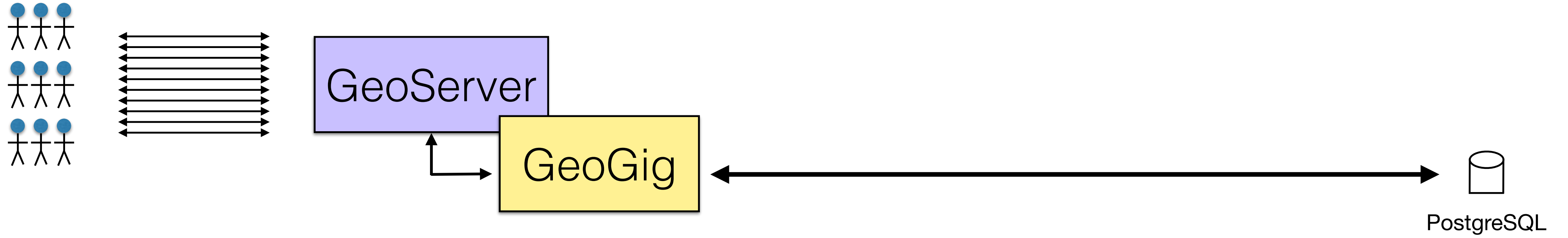
GeoGig Releases

- | | | | |
|---------|--------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 2016 Q4 | 1.0 | - First official LocationTech release!
Core functionality complete. |  |
| 2017 Q2 | 1.1 | - Optimization for direct GeoGig Querying.
Spatial-with-attributes index. | |
| 2017 Q3 | 1.1.1 | - More optimization for GeoGig inside GeoServer
GeoServer Clustering Support | |

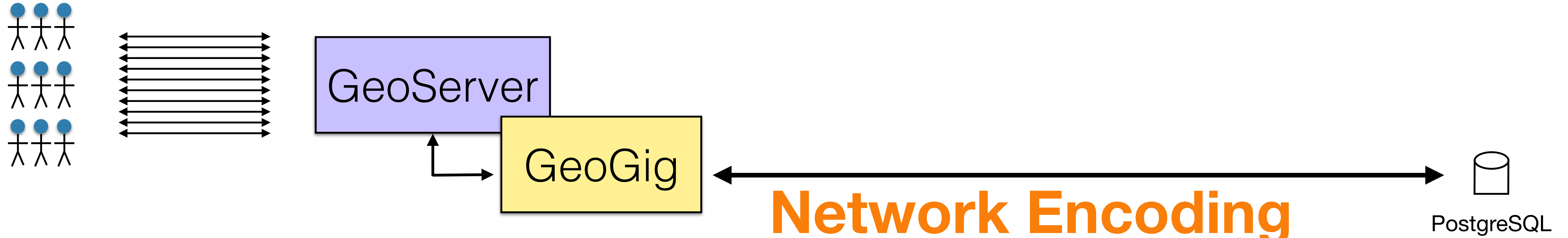
1.1.x Series



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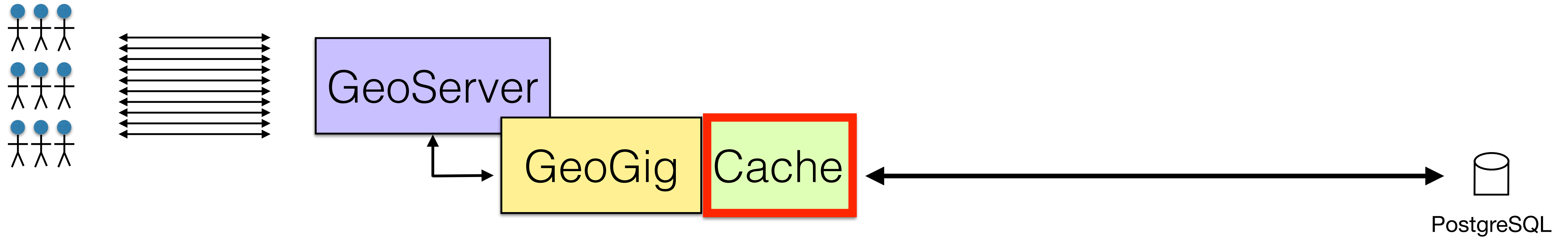


Network Encoding

- *1.1* - twice as small as 1.0
- *1.1.1* - another 25% smaller

Almost 3* smaller!

1.1.x Series



In-Memory Cache

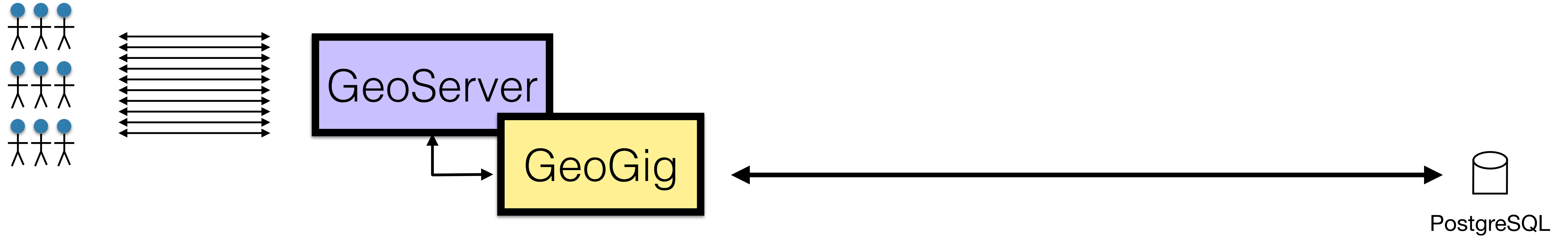
- lots of performance improvements!
- easy to configure
- view usage statistics

tatus

Property	Value	Description
Number of objects	872284	Approximate number of revision objects in the cache
Size in MB	475.483	Approximate cache size in MB
Maximum size in MB	2,730	Currently configured maximum cache size in MB
Maximum size %	0.75	Configured maximum cache size as a ratio of the JVM maximum heap memory
Absolute maximum size in MB	3,276.9	Absolute maximum size the cache can be configured to
Default cache size in MB	2,730.75	Default cache size as given by configuration parameters
Eviction count	0	Number of times an entry has been evicted
Hits count	1216228	Number of times lookup methods have returned a cached value
Hits rate	0.577	Ratio of cache requests which were hits
Miss count	891956	Number of times a cache lookup resulted in a non cached value
Miss rate	0.423	Ratio of cache requests which were misses

[Refresh](#) [Clear cache](#)

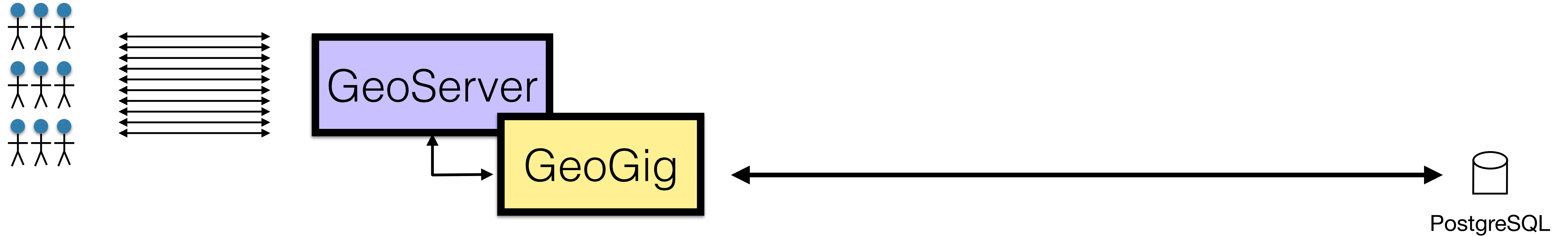
1.1.x Series



Rendering Performance Improvements

- took a deep look at the rendering process
- made many optimizations

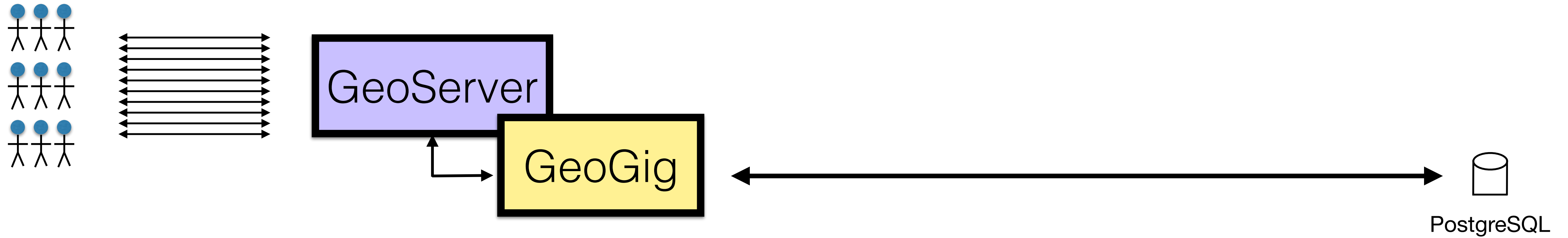
1.1.x Series



Clustered GeoServer Deployments

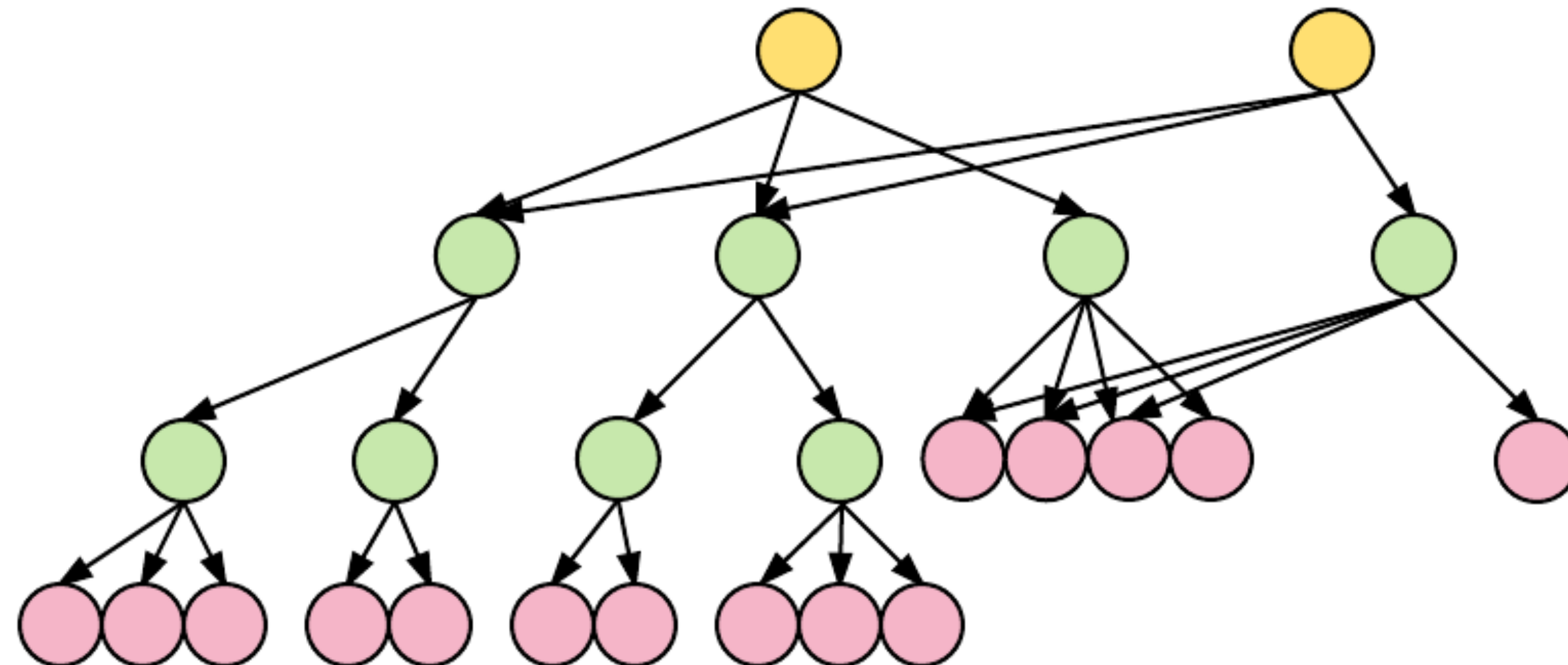
- made sure GeoGig functioned with GeoServer's Resource API
- watch out for the size of the memory cache

1.1.x Series

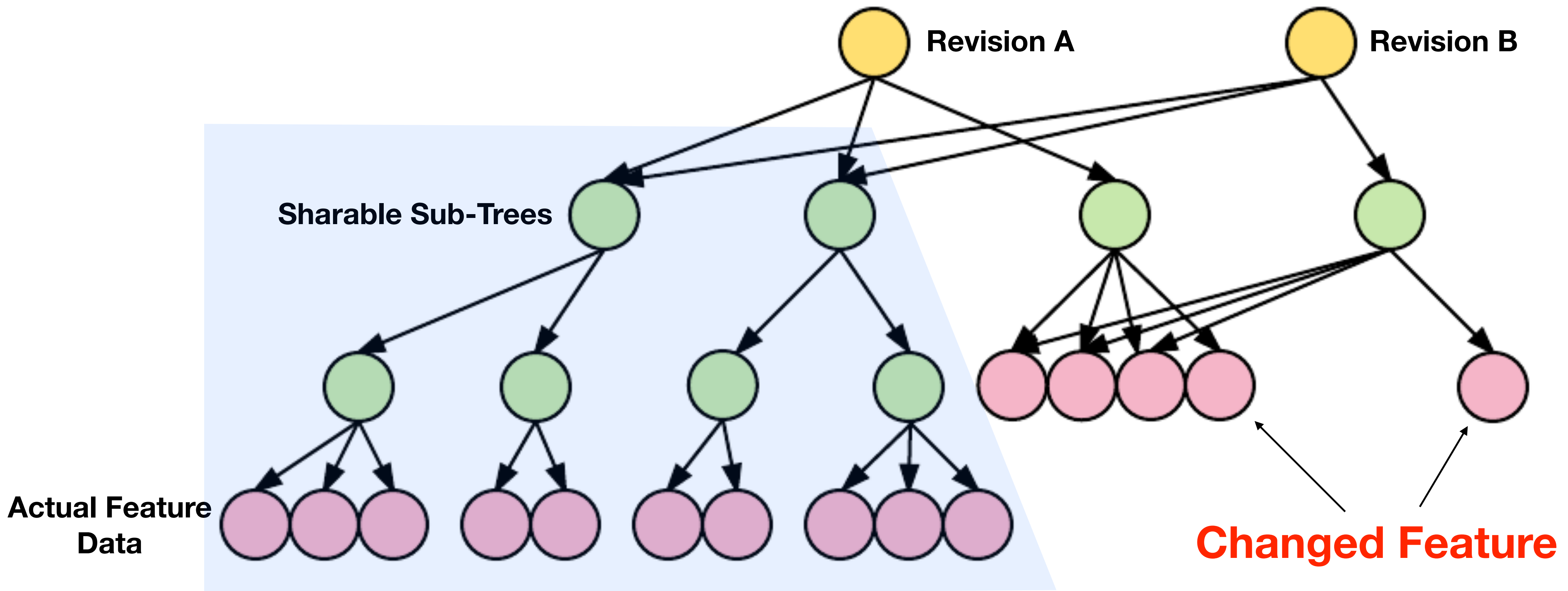


Spatial-With-Attributes Index

- Biggest task in 1.1.x
- Huge performance improvements



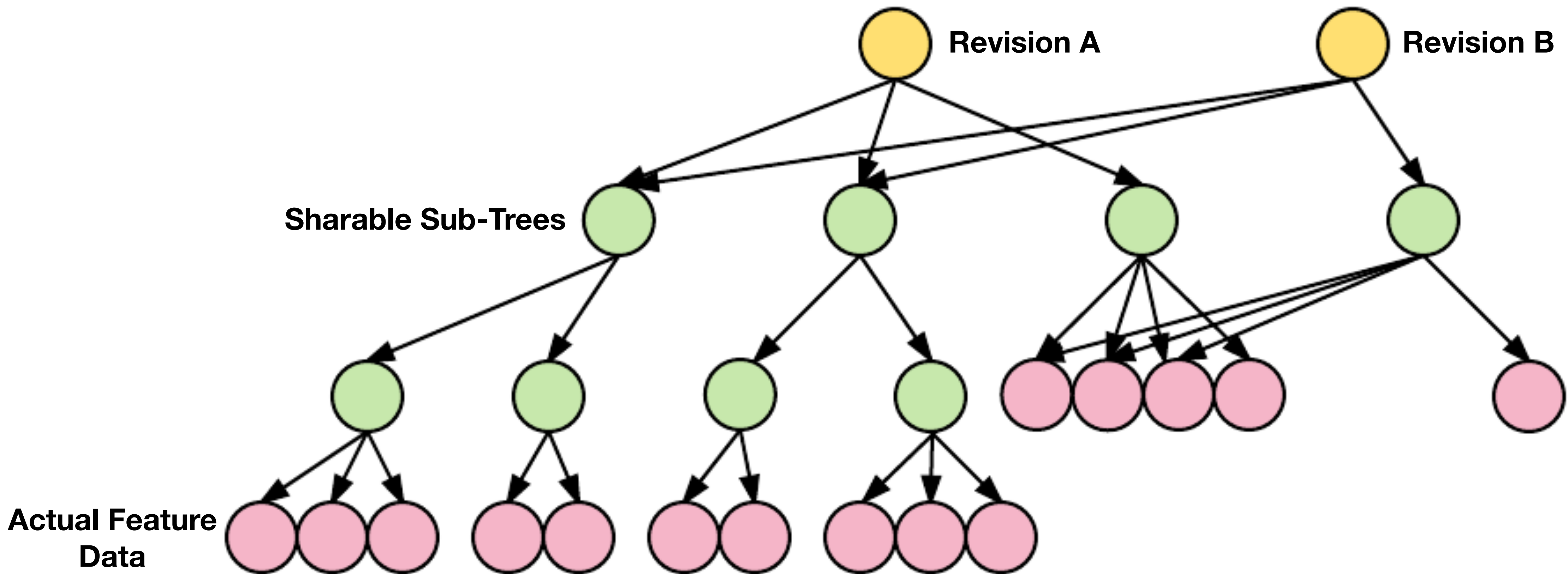
Spatial-with-Attributes Index



GeoGig holds most of its information in two places

- **A revision-sharing hash (Merkle) index tree**
- **Actual feature data**

Spatial-with-Attributes Index



When you want to Query features in a revision;

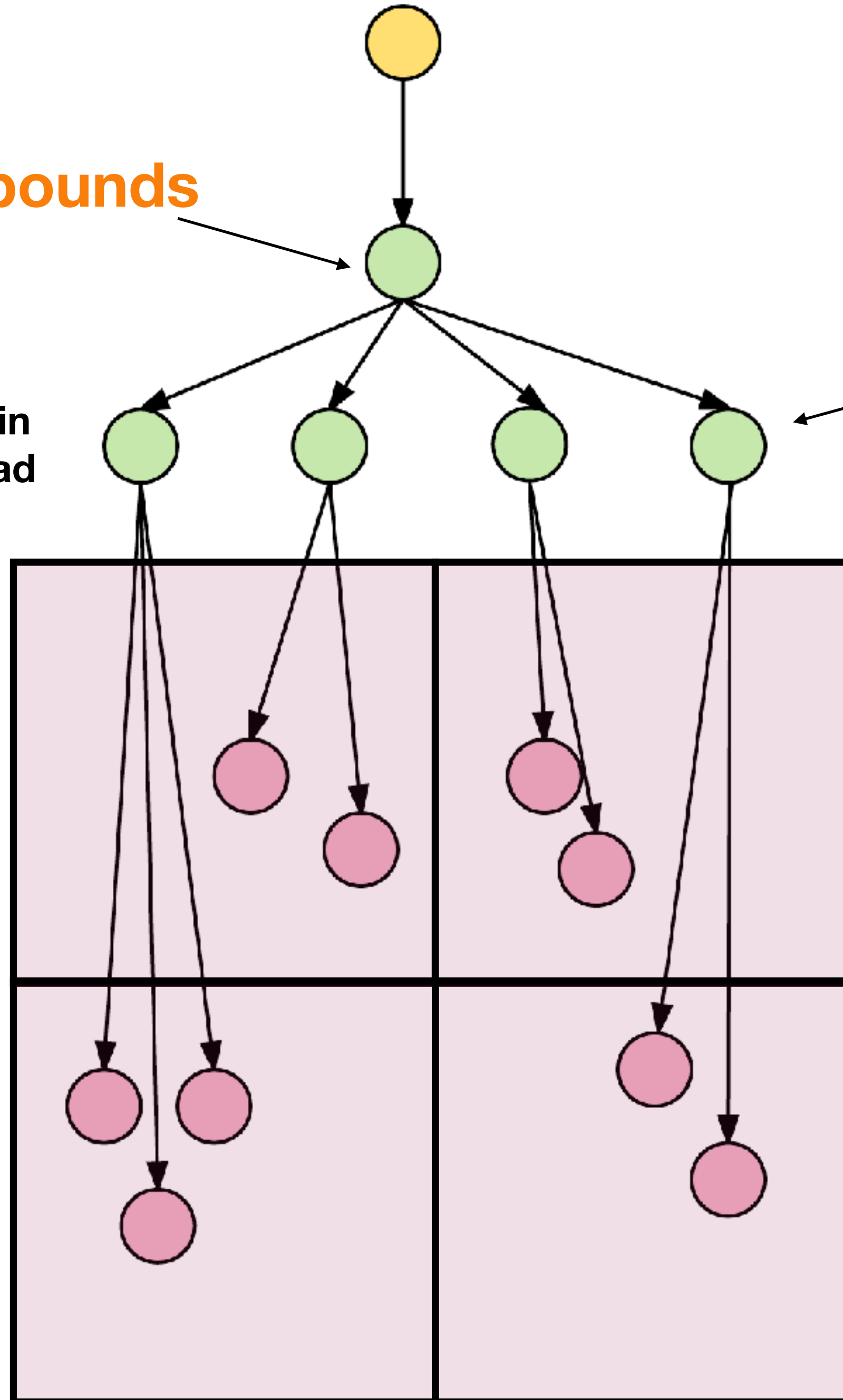
- a) Scan through the tree**
- b) Request the features**

Quad-Tree

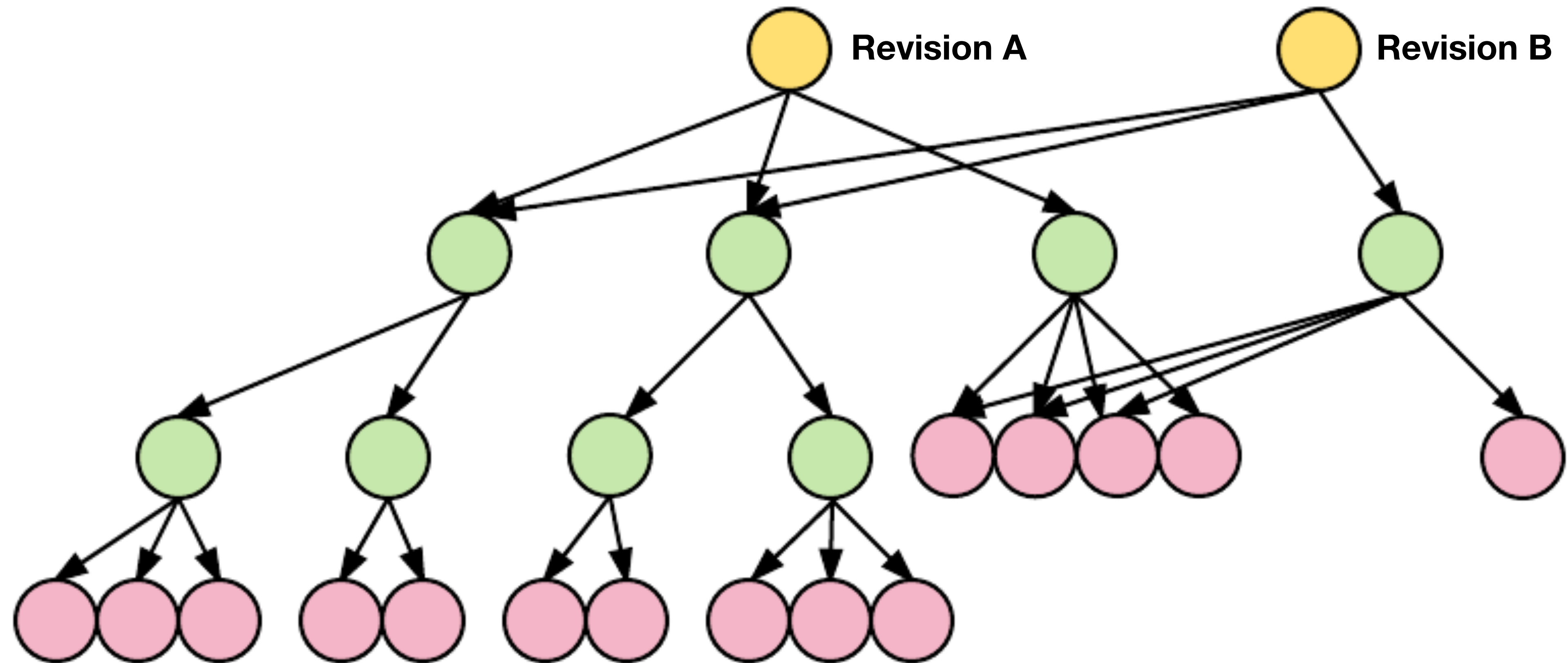
Includes sub-tree bounds

Includes feature bounds

Features in Same Quad



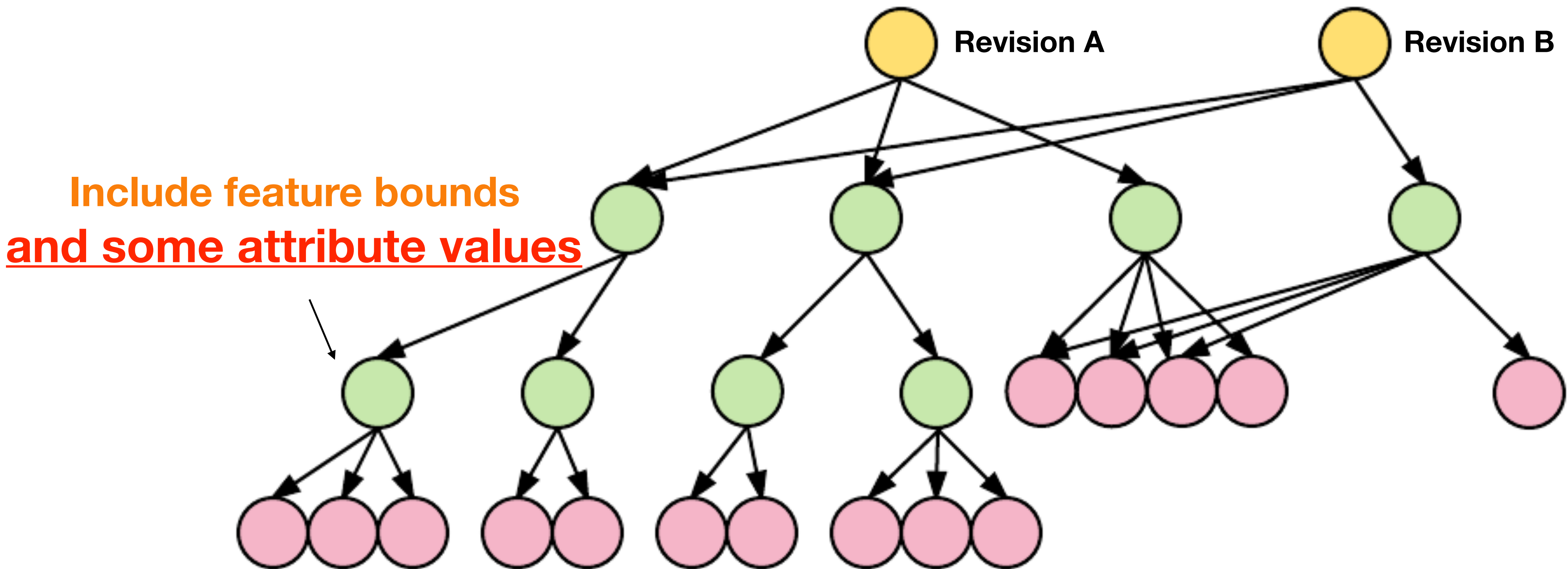
Spatial-with-Attributes Index



What about attribute Queries?

- Just draw *Highways* from a roads dataset
- Just draw a *time-slice* of data from a time-enabled layer

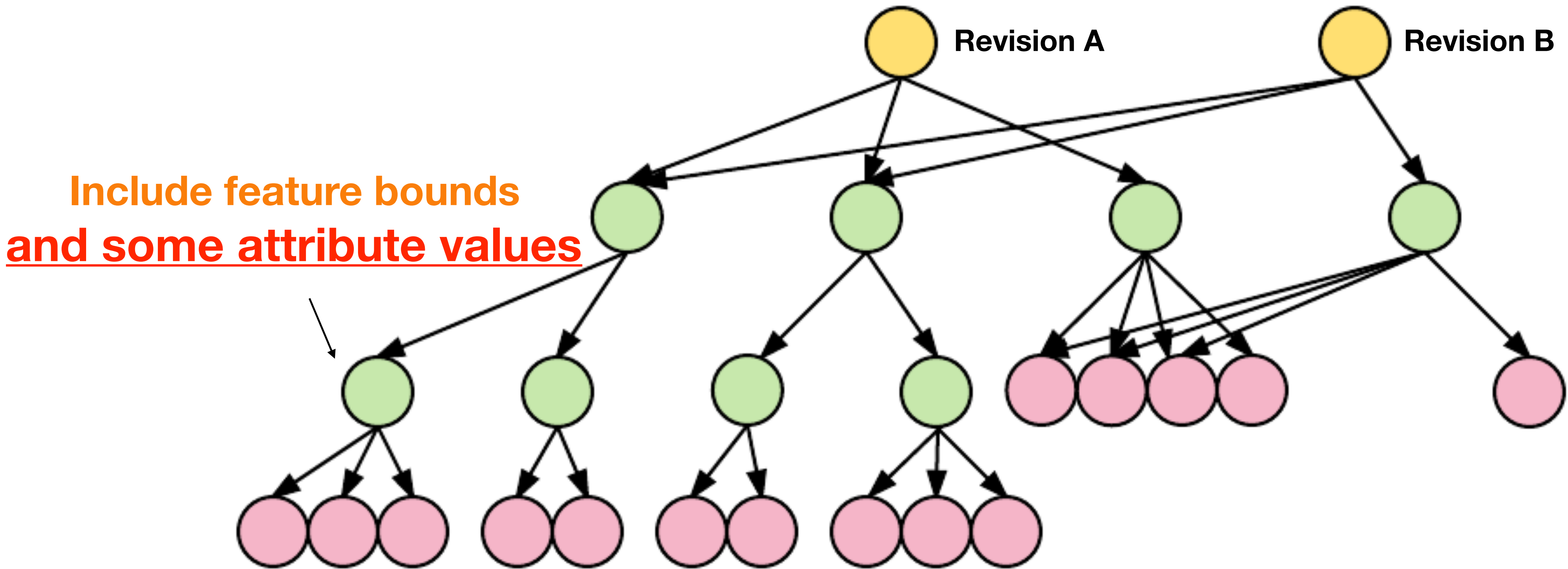
Spatial-with-Attributes Index



We add some of the feature's attribute data to the leaf nodes

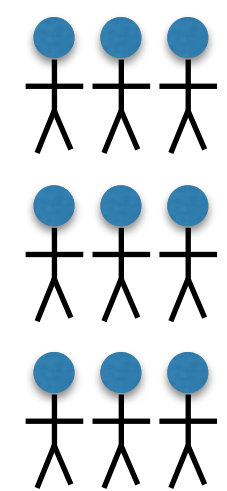
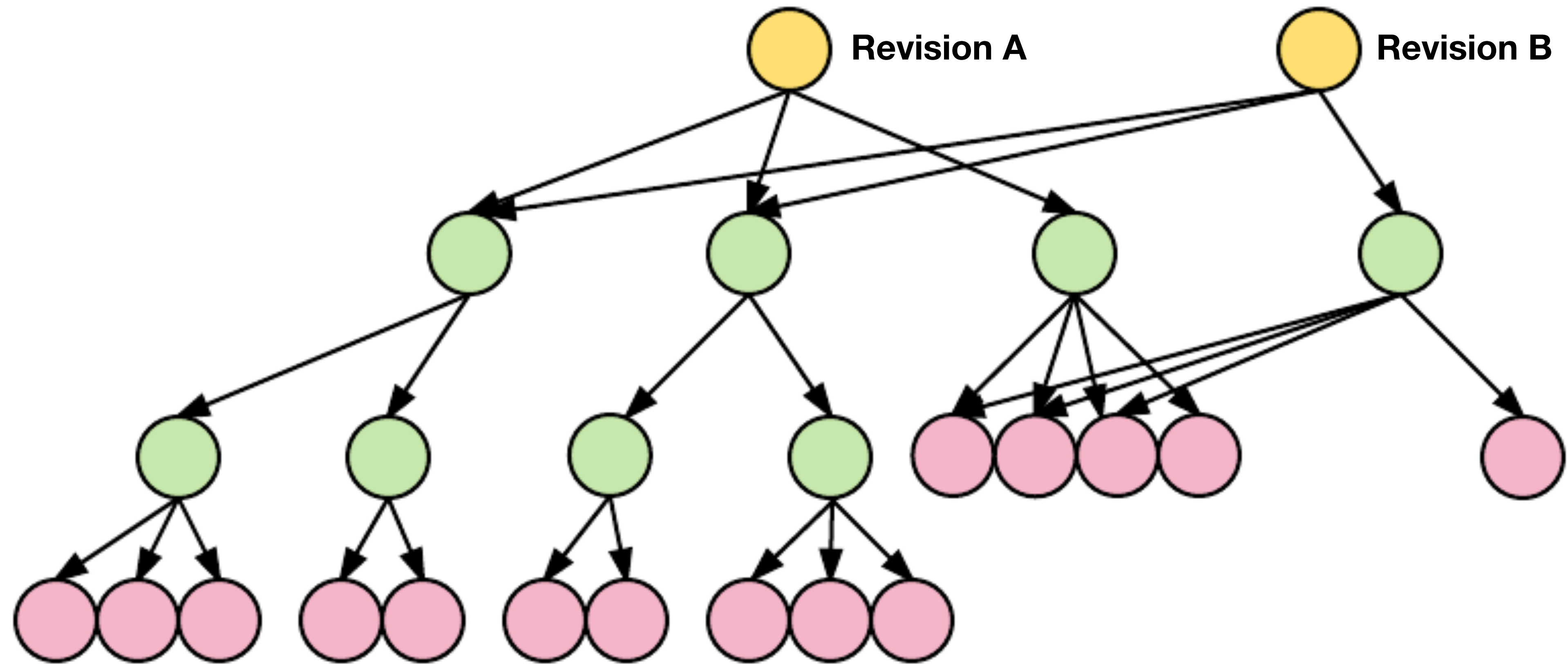
HUGE performance boost

Spatial-with-Attributes Index



Optimize queries and retrieval

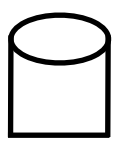
Spatial-with-Attributes Index



GeoServer

GeoGig

Cache



PostgreSQL

1.1.x - Where are we?



The performance improvements in this release open the door to many more use cases for GeoGig implementations. Boundless is excited to have a newly sharpened version of this powerful tool.

Zach Rouse - Boundless Exchange

GeoGig spatial indexing, specifically the flexibility to materialize any spatial or non-spatial attribute is a key performance enhancement yielding immediate value for spatio-temporal queries.

Clarence Davis - StoryScapes



- 1.0 - Core Functionality, LocationTech Graduation**
- 1.1.1 - Performance meeting/beating expectations**

Where are we going?

- 1.2 - Changes required for GeoServer 2.12 release (REST)**
- Improving performance of *clone/push/pull/fetch***

Where do we need to go next?

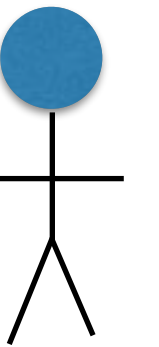
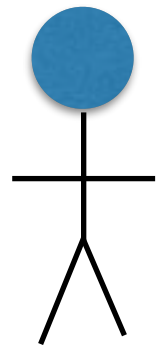
Where do we need to go next?

**We really really want
people to actually
collaborate.**

Where do we need to go next?

Need to make

things easy to use!



Making Things Easier

Concentrating on User Experience

Making Things Easier

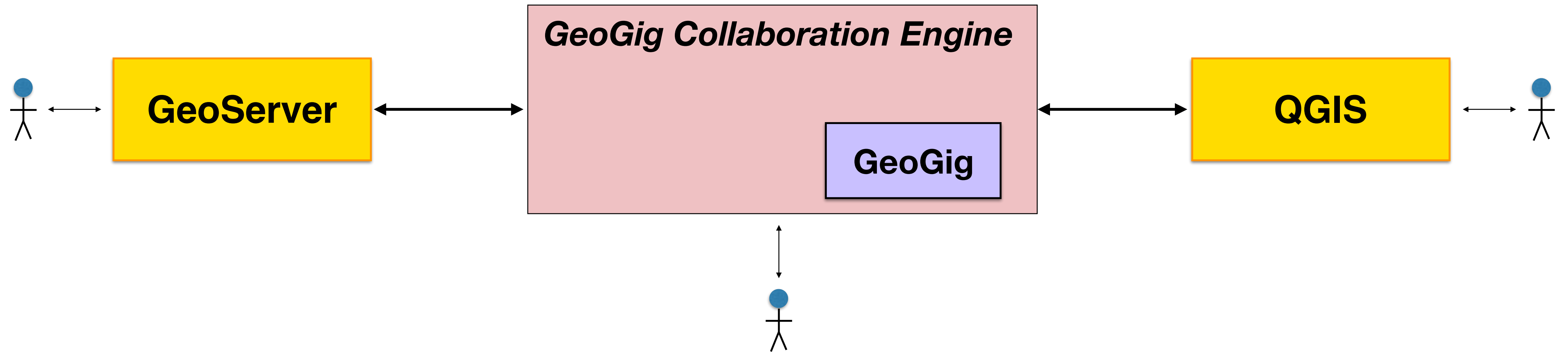


Workflows

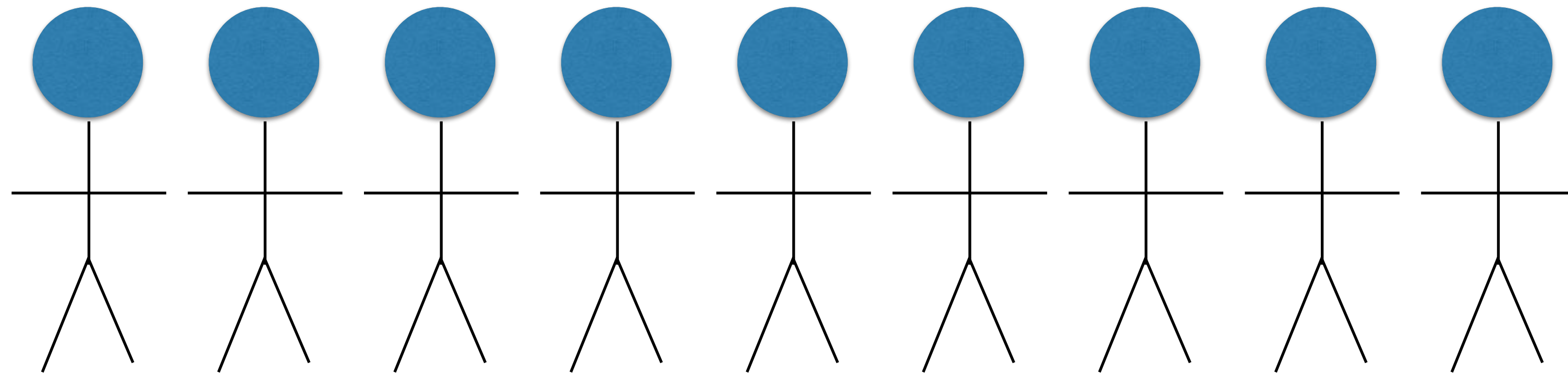
High-level Primitives

Fundamental GeoGig Ops

Making Things Easier



Enabling Collaboration



**We want to hear how you could use GeoGig
geogig-dev@locationtech.org**



**Discover, Learn,
Collaborate, and Share
With GIS Professionals**

connect.boundlessgeo.com

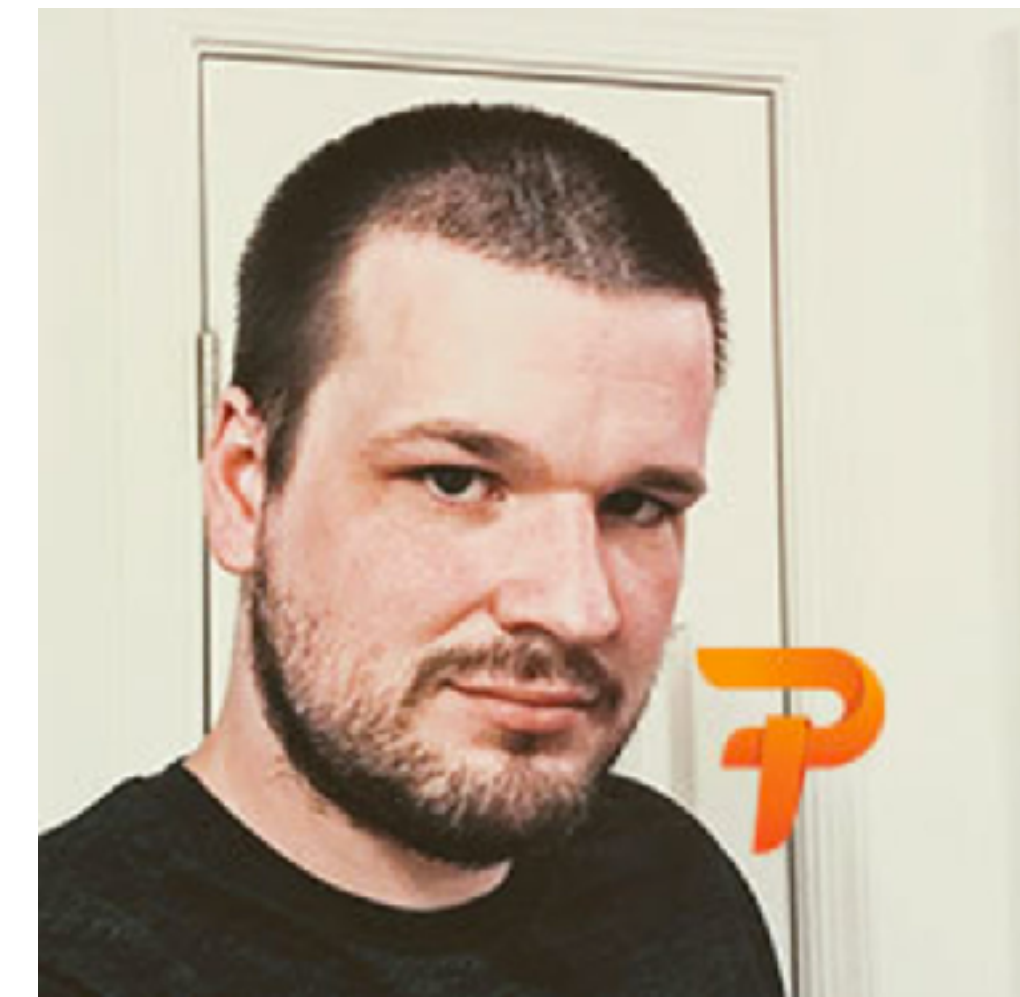
Check out our booth #103

Q&A

Please come talk to us during the conference
or on-line at geogig.org - geogig-dev@locationtech.org



David Blasby



Johnathan Garrett

