ArcSDE for Java Developers

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ArcSDE 8.1 Java API

- **Why are we developing it?**
- **What is it?**
- **What can you do with it?**

Why another ArcSDE API?

- **Ability to develop platform independent ArcSDE client applications**
- **Allows for faster application development**
- **Abundance of toolkits**

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Why a Java API?

- **Support ArcExplorer Java effort**
- **Support ArcIMS ArcSDE clients**
- **Groundwork for future ESRI Java projects**

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Overview of the Java API

- **3 packages**
  - **Client package**
    - **com.esri.sde.sdk.client**
  - **Geometry package**
    - **com.esri.sde.sdk.geom**
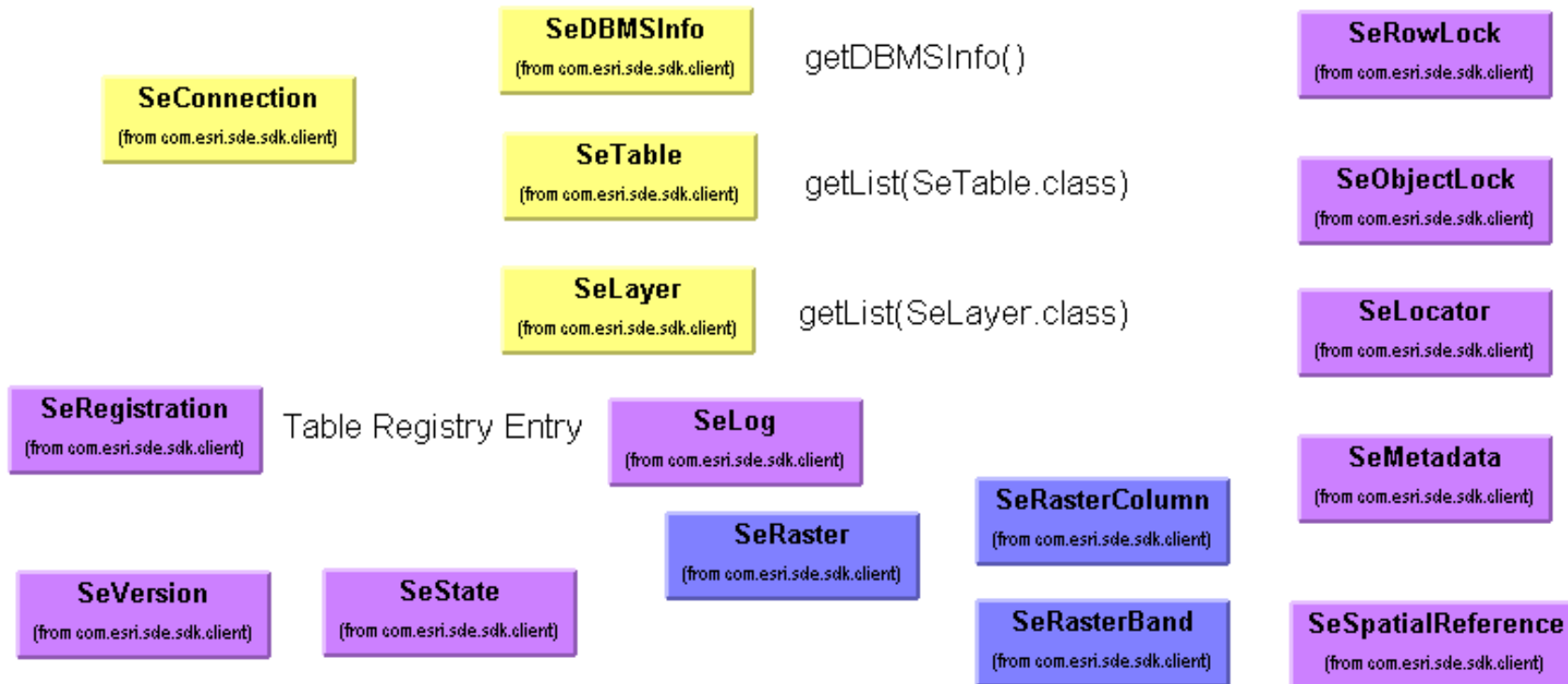 - **Projections package**
    - **Com.esri.sde.sdk.proj**

Client Package

- **Handles communication with an ArcSDE instance**

- **Pure Java**
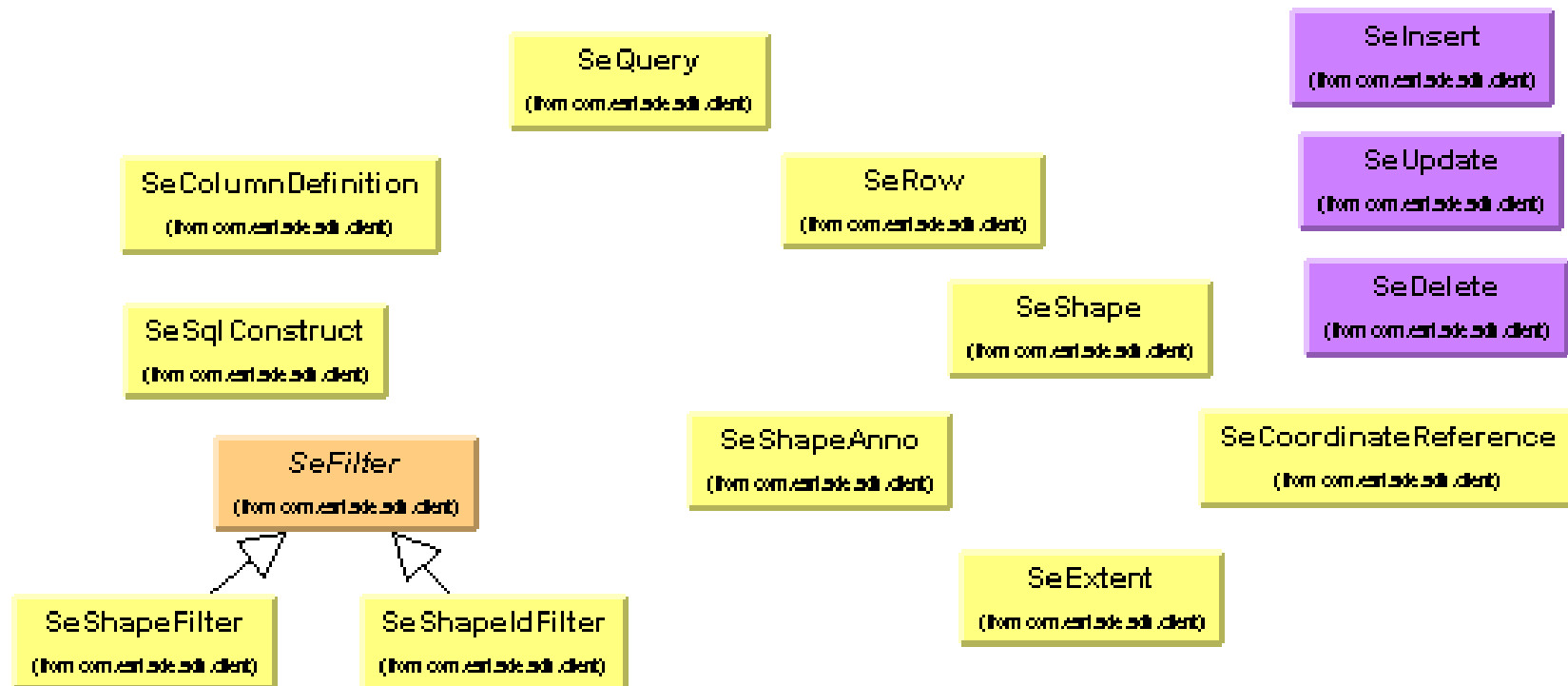 - **Right down to the socket level transmission layer of ArcSDE**

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Class Diagram – Server Objects

SeDBMSInfo
(from com.esri.sde.sdk.client)

getDBMSInfo( )

SeConnection
(from com.esri.sde.sdk.client)

SeTable
(from com.esri.sde.sdk.client)

getList(SeTable.class)

SeLayer
(from com.esri.sde.sdk.client)

getList(SeLayer.class)

SeRowLock
(from com.esri.sde.sdk.client)

SeObjectLock
(from com.esri.sde.sdk.client)

SeLocator
(from com.esri.sde.sdk.client)

SeRegistration
(from com.esri.sde.sdk.client)

Table Registry Entry

SeLog
(from com.esri.sde.sdk.client)

SeMetadata
(from com.esri.sde.sdk.client)

SeRasterColumn
(from com.esri.sde.sdk.client)

SeRaster
(from com.esri.sde.sdk.client)

SeVersion
(from com.esri.sde.sdk.client)

SeState
(from com.esri.sde.sdk.client)

SeRasterBand
(from com.esri.sde.sdk.client)

SeSpatialReference
(from com.esri.sde.sdk.client)

Class Diagram
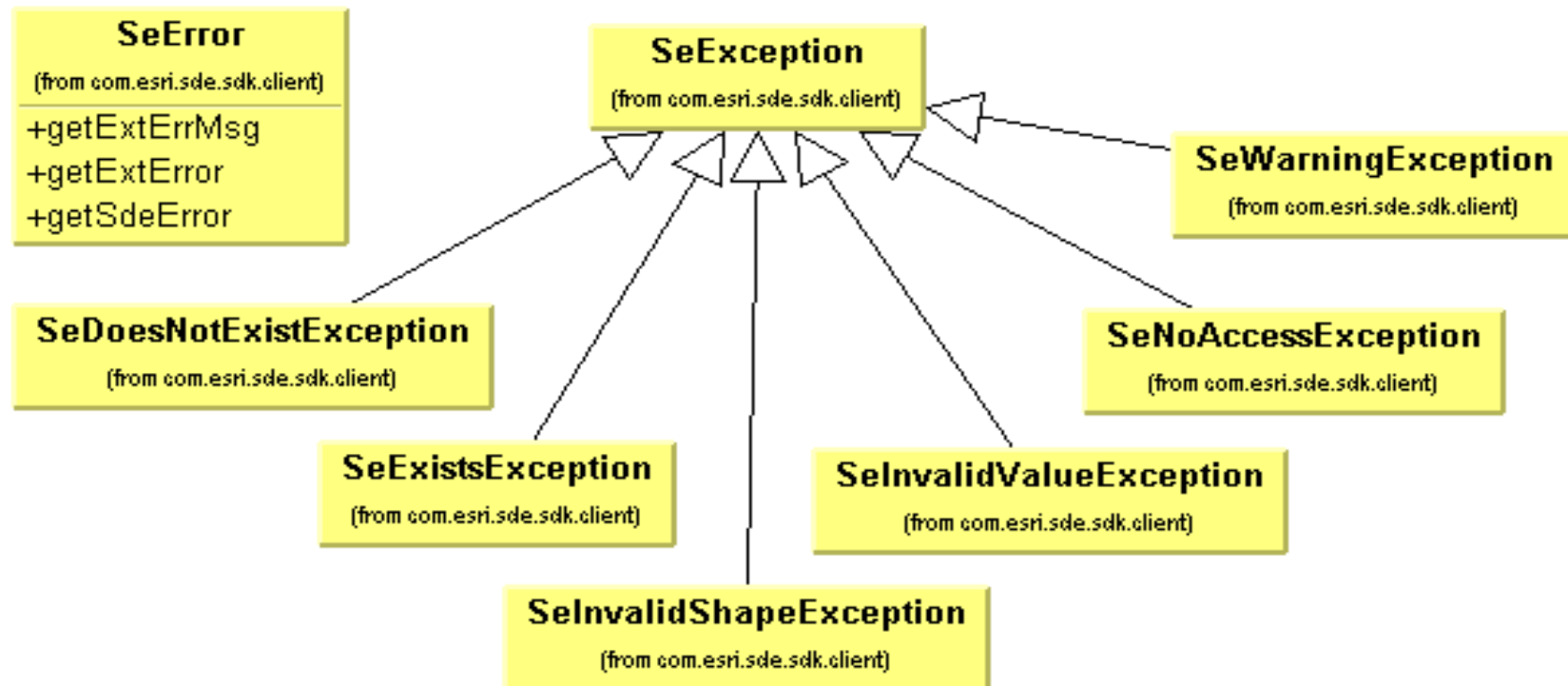# - Stream Objects

Class Diagram - Exceptions

Example Code

Client Package

Geometry Package

- – **Can Be used with JDBC to work directly with databases**

- – **Partially written in Java/Still using some C functionality through JNI (Java Native Interface)**

- – **Utilized by Client Package**

Pure Java and Native code

- **Pure Java**
  - **Create a geometry**
    - fromWKT
    - fromWKB
  - **Accessor methods**
    - is3D, isMeasured
    - getAllPoints

- **JNI implementation**
  - verification
  - **Spatial operations**
    - Buffer
    - union
  - **Spatial Relations**
    - Contains
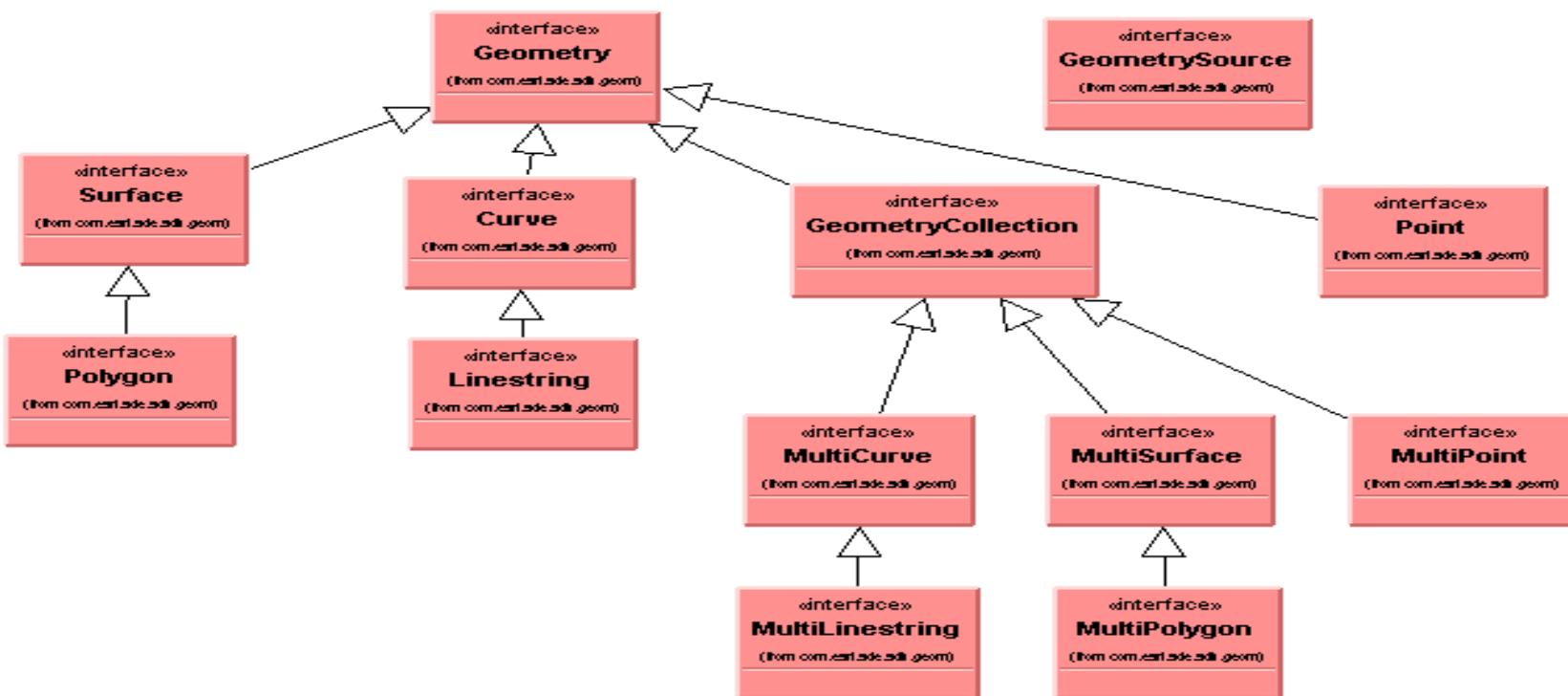   - intersects

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Platforms

- **Requires JDK 1.2.2**
- **(Java 2 Standard Edition)**
  - Windows NT 4.0 Intel(service pack 6a)
  - Compaq Tru64
  - HPUX 11.0
  - IBM AIX 4.3.3
  - SGI IRIX 6.5 (subject to availability of JDK 1.2.2 final)
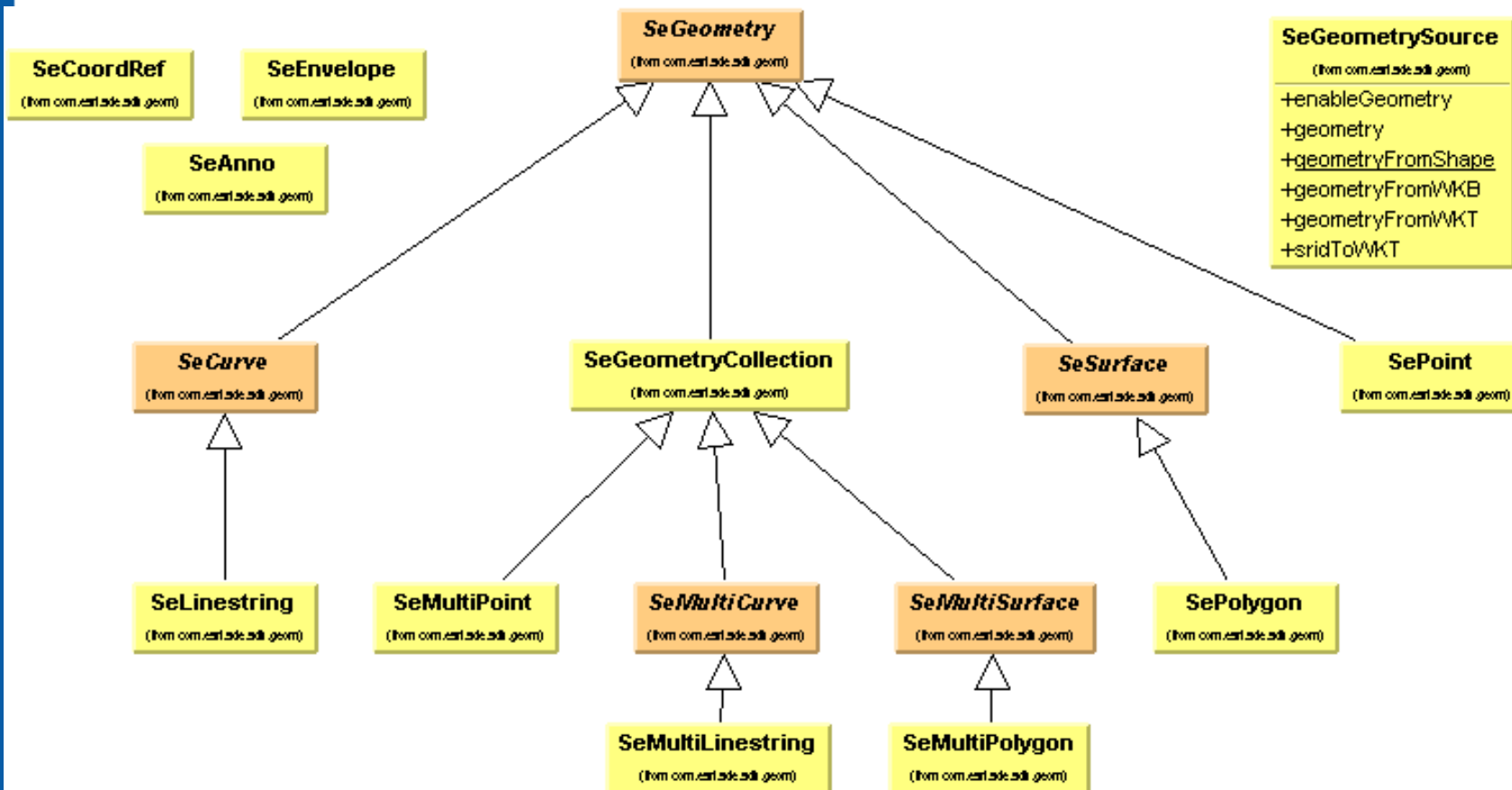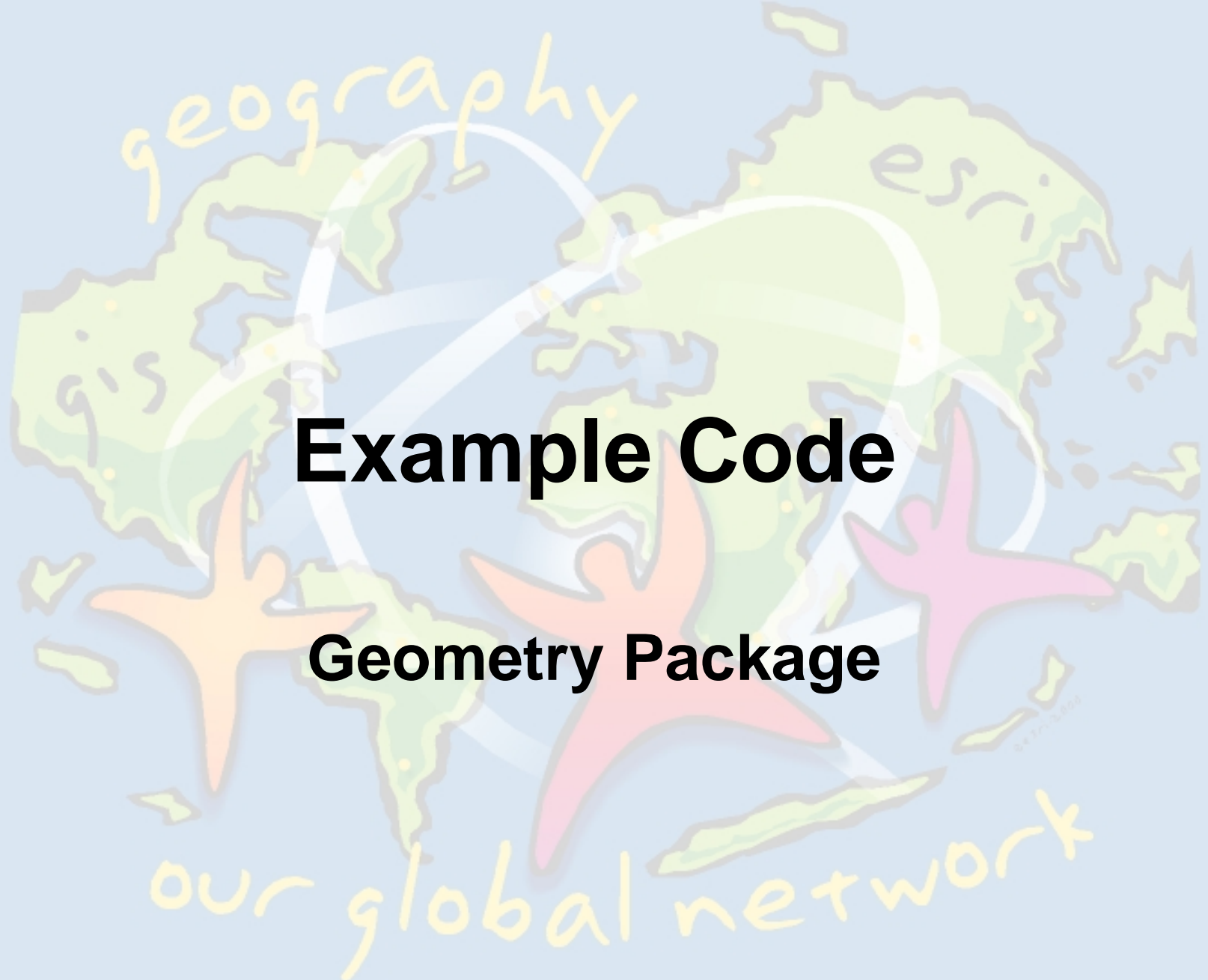 - Solaris 2.7

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OGC interface hierarchy

Class Diagram

Example Code

Geometry Package

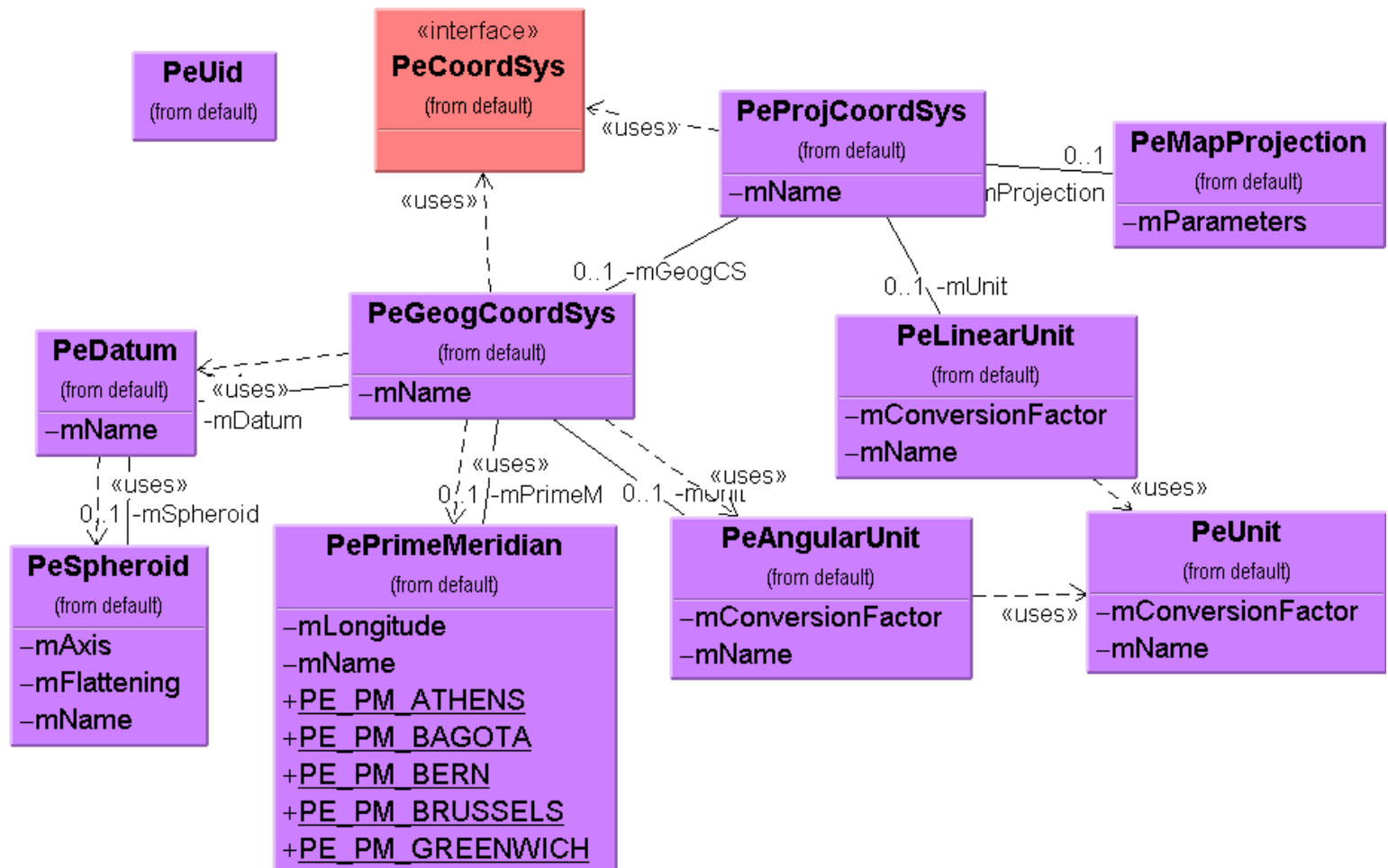Twentieth Annual ESRI International User Conference • June 26-30, 2000

Projections Package

- **Create your own Coordinate Systems**
- **Implement your own transformation functions**
- **JNI implementation**

Class Diagram

Example Code

Projection Package

What can you build with the ArcSDE Java API?

- **ArcSDE client applications that run in a web browser (Java applets)**

- **Java Applications that manage a versioned database**

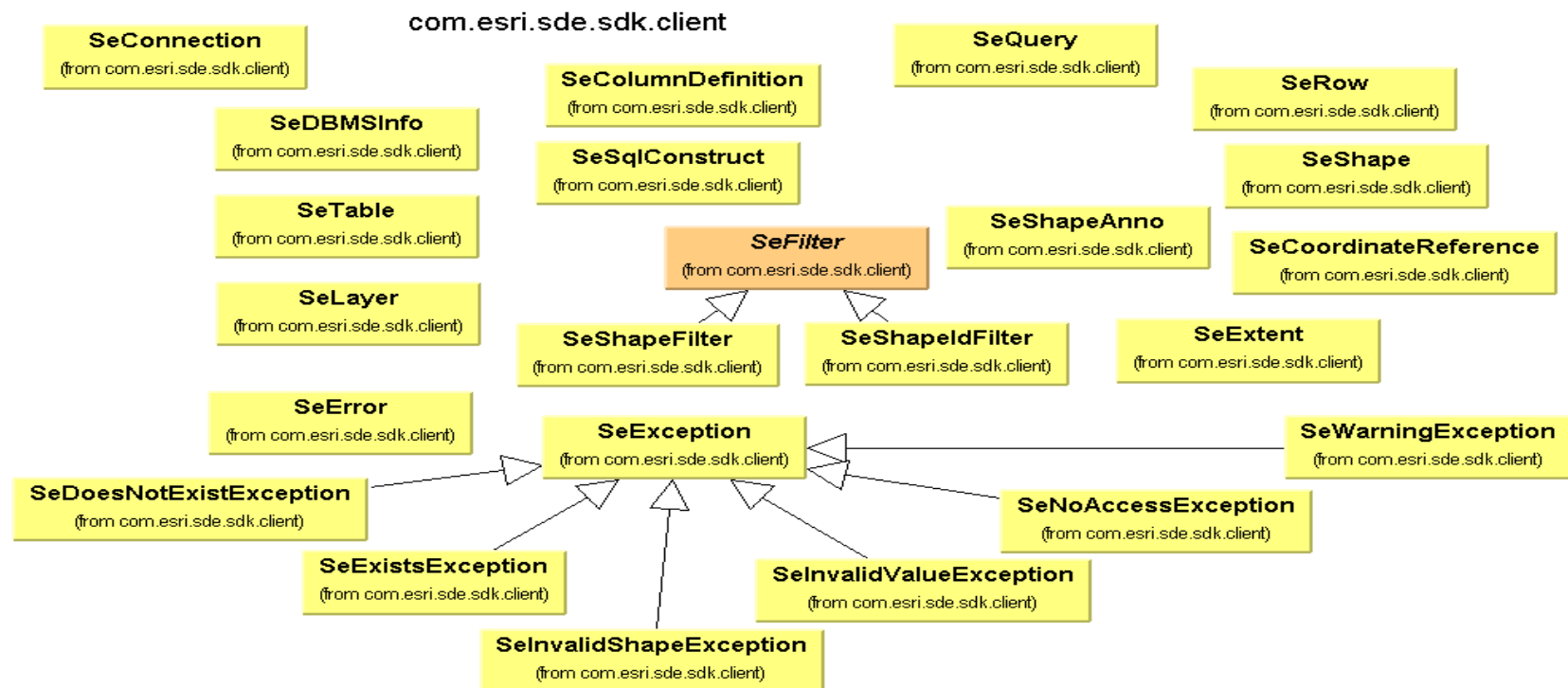- **JDBC applications that can work directly with databases**

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availability

- **Beta 1 (early July)**
- **Beta 2 (August/September)**
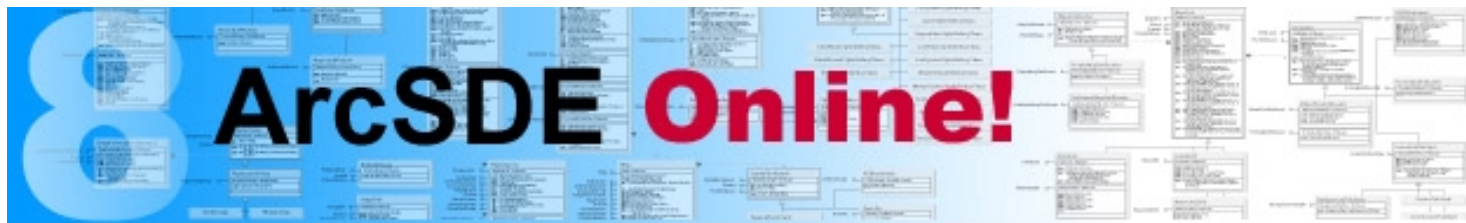- **Final (before the end of 2000)**

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What's in Beta 1?

JavaDoc

- **Beta 1 documentation available as part of the ArcSDE Developer Help**

- **And on ArcSDE Online**

What to expect in Beta 2

Final Release

- **All public interfaces/classes/methods are subject to change until the API goes final with the final release of ArcSDE 8.1**

SeRaster
(from com.esri.sde.sdk.client)

SeRasterBand
(from com.esri.sde.sdk.client)

SeRasterColumn
(from com.esri.sde.sdk.client)

C-API functionality not provided in Java API

- – **Operations on old Logfile format**
- – **Column binding**
- – **Application development support functions**
  - • **Trace functions for logging client method calls**
  - • **Stable and Ptable for maintaining local cache of geometries and coordinates**

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geography

esri

gis

our global network

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Performance

- **fetched 137173 features using java and c api**

- **They both took between 17 to 19 seconds depending upon network and server load.**

Beta 1 files

- **Found under $SDEHOME/lib**
- **Jsde81_sdk.jar**
  - **Add to CLASSPATH**
- **libjsg81.so or jsg81.dll**
  - **Add to library path**

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