



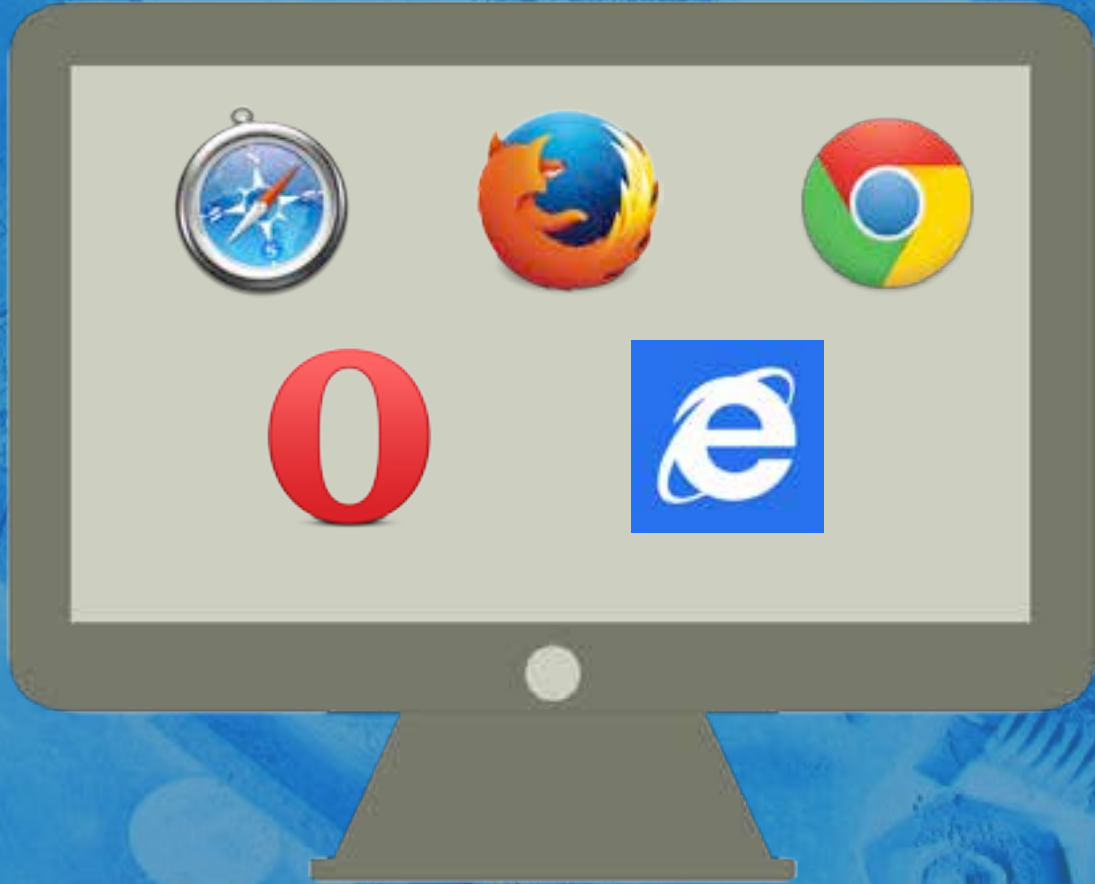
Esri International Developer Summit
Palm Springs, CA

Using Web Workers and Processors to Bend Data to Your Will

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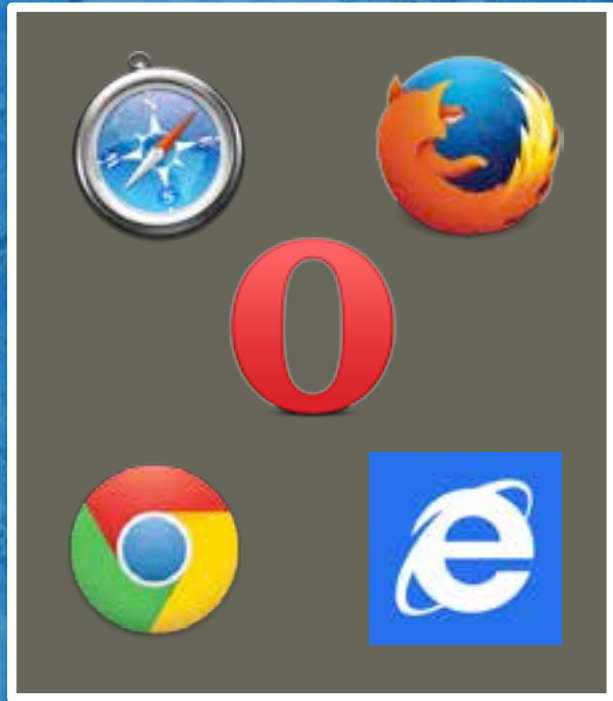
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- **Intro to workers**
 - **Support**
 - **Workers, processors, and ArcGIS API for JavaScript**

Intro to Workers

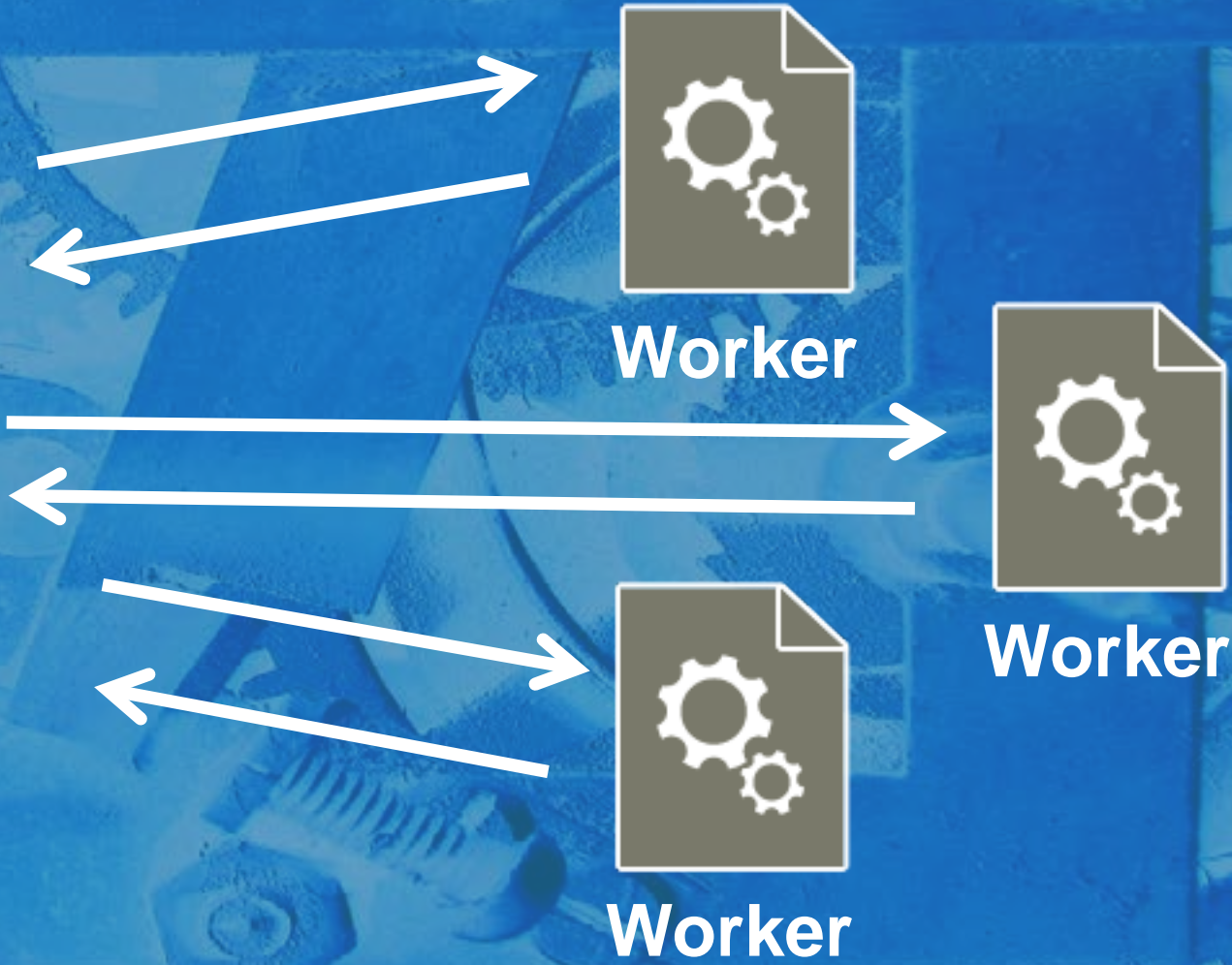




Worker

JavaScript and multi-threading



Browser



Feature								 
Dedicated workers	3	3.5	10	10.6 0	4	5.0	No	29 (4.0+)
Shared workers	3	No	No	10.6 0	5	No	No	No
Blob URI source	Yes	Yes	No	???	Yes	Yes	No	Yes
Data URI source	No	Yes	No	???	No	No	No	No
Sub Workers	No	Yes	Yes	???	No	No	No	No
Structured Cloning	13	8	10 typed arrays	11.50	5.1	???	No	???
Transferable Objects	21	18	No	15	6	???	No	???
Static URL methods	23, 10 as webkitURL	21	11	15	6 as webKitURL	6 as webKitURL	No	29 (4.0+)

Use cases

- Prefetching data
- Analyzing video / audio
- Background I/O of web services
- Processing data
- Image filtering in `<canvas>`

Lots of image processing examples

For example ...

Full Color to Sepia – 255ms





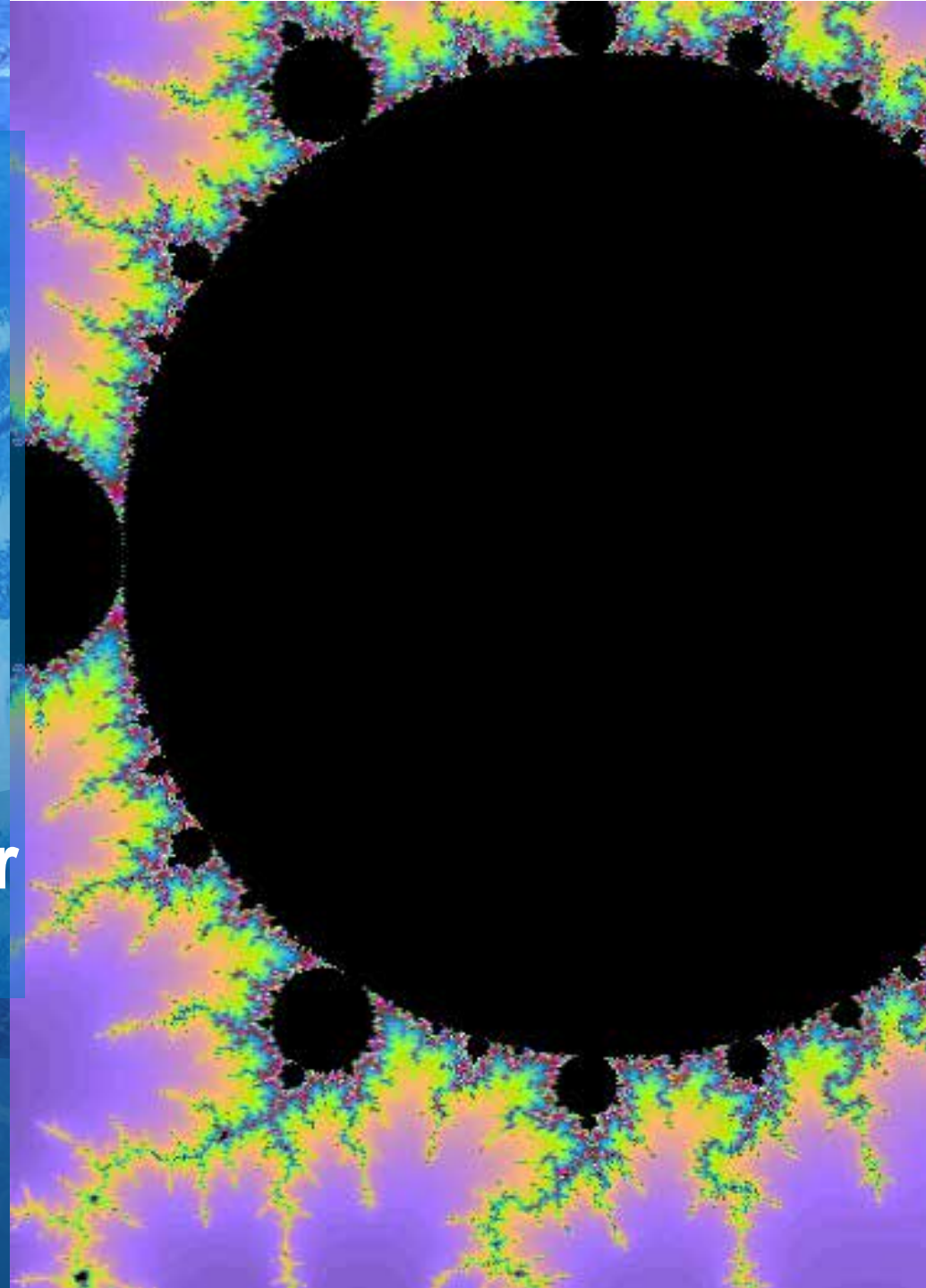
Workers

postMessage

message – serializable object
transfers – transferable object

(typed array)

onmessage – message event listener
event.data



WorkerClient

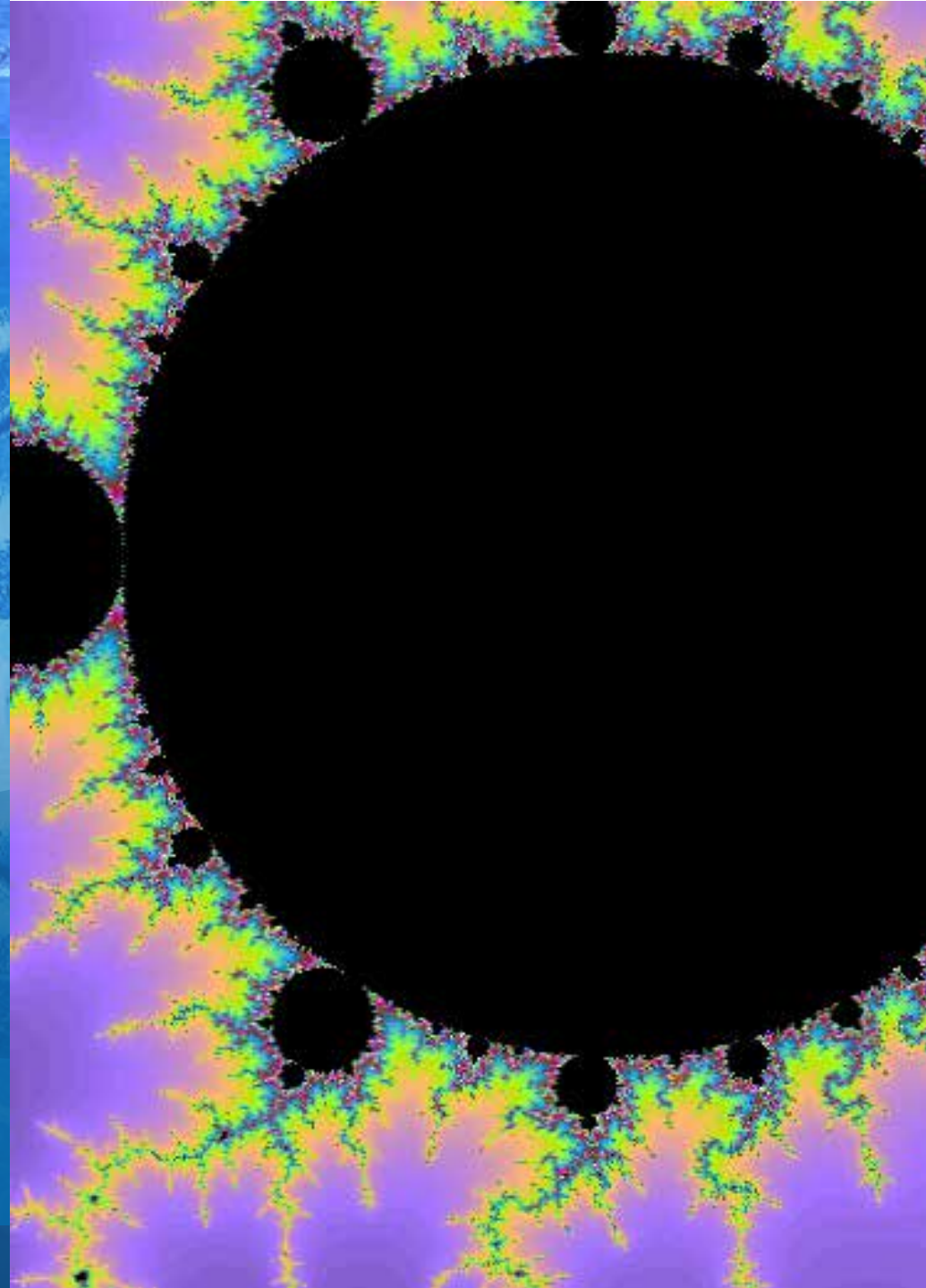
wraps Worker and adds Promises

postMessage à Promise

importScripts à Promise

addWorkerCallback à Promise

'message' – message event





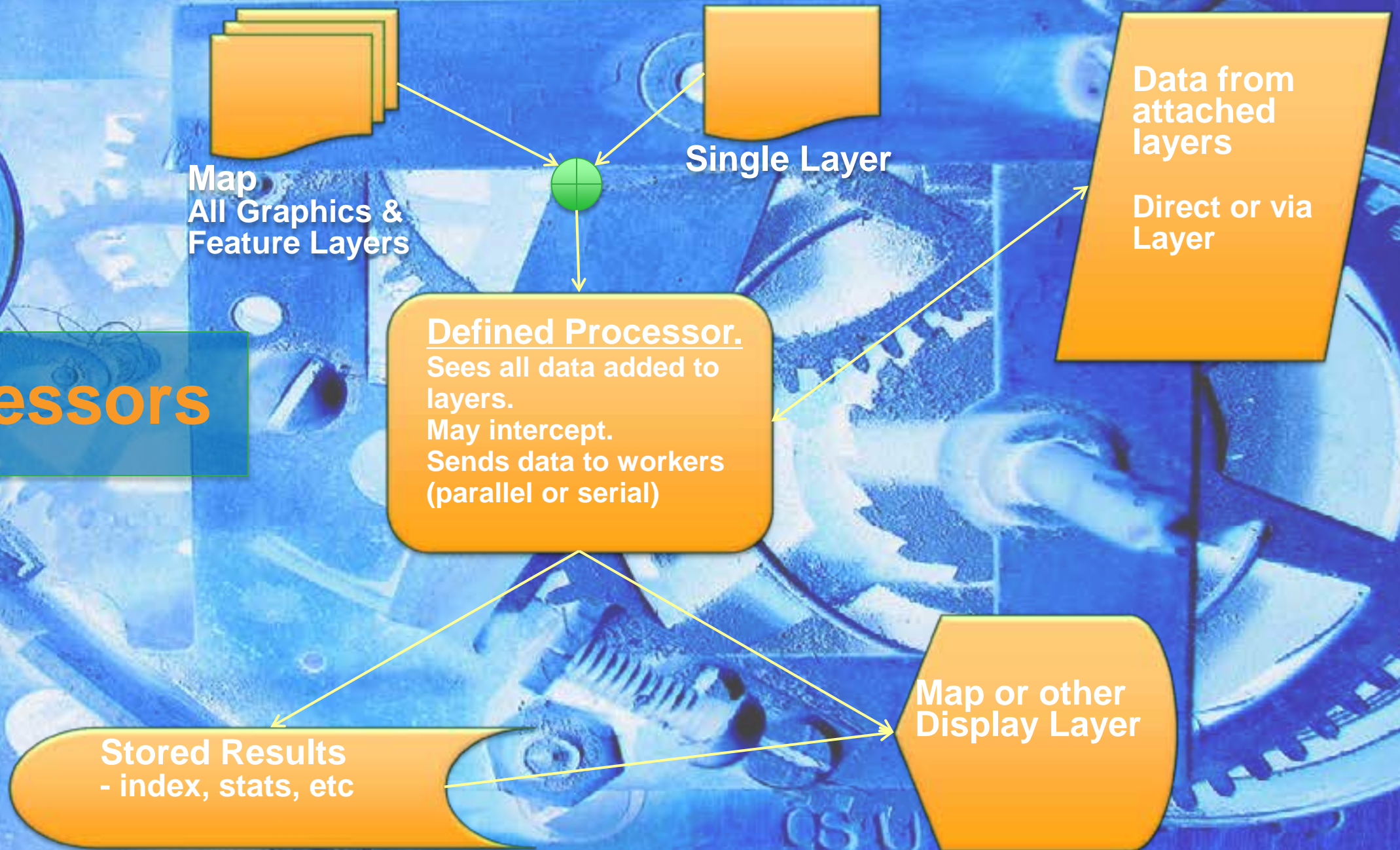


Processors

Spatial Indexing

esri/process/SpatialIndex

Processors

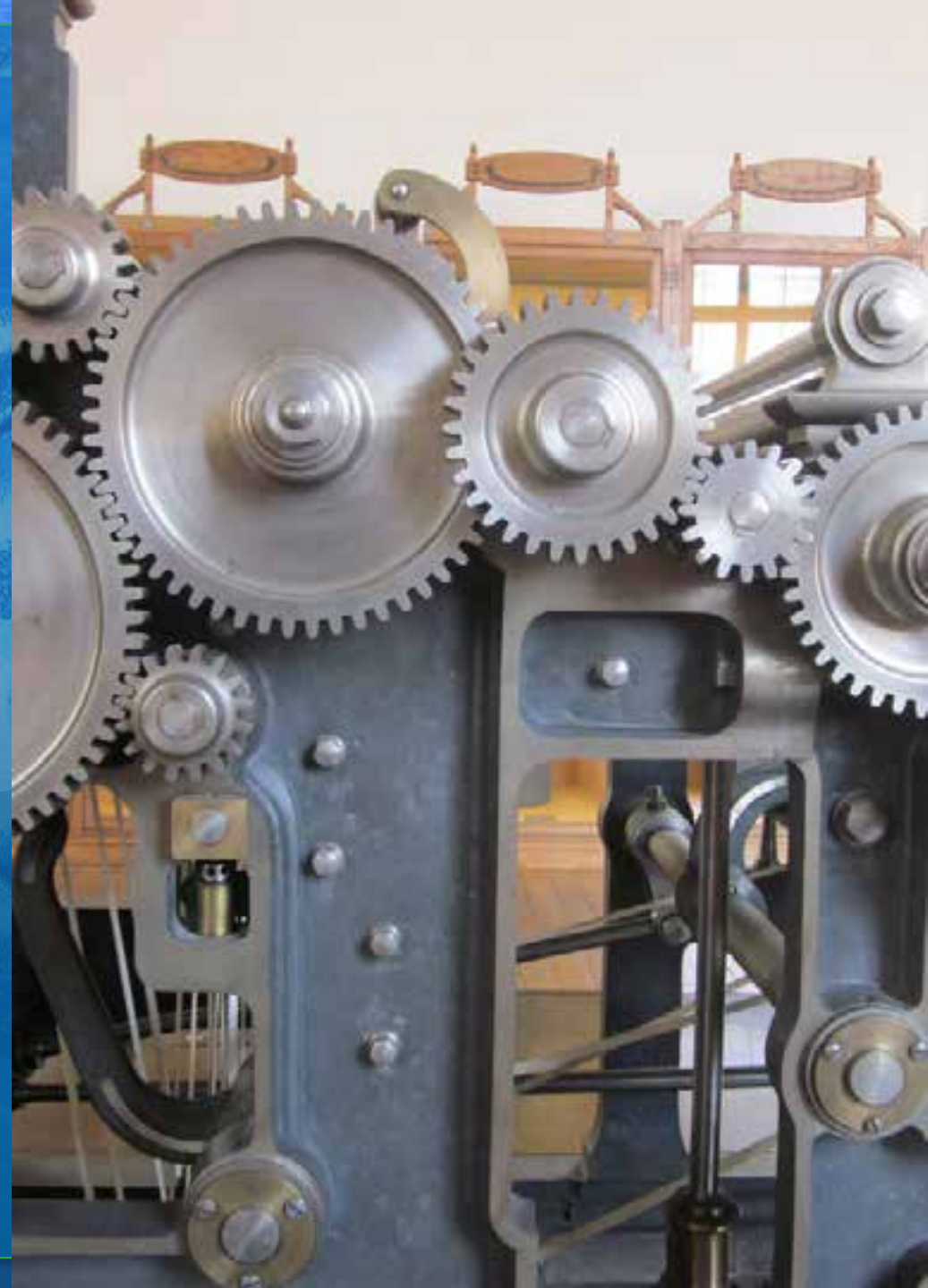


Processor

Base class for processors.

Must implement process functions including what and when to post data to worker.

- **Options**
 - drawFeatures, passFeatures, workerCallback
- **Methods**
 - addLayer, removeLayer, setMap, unsetMap, stop

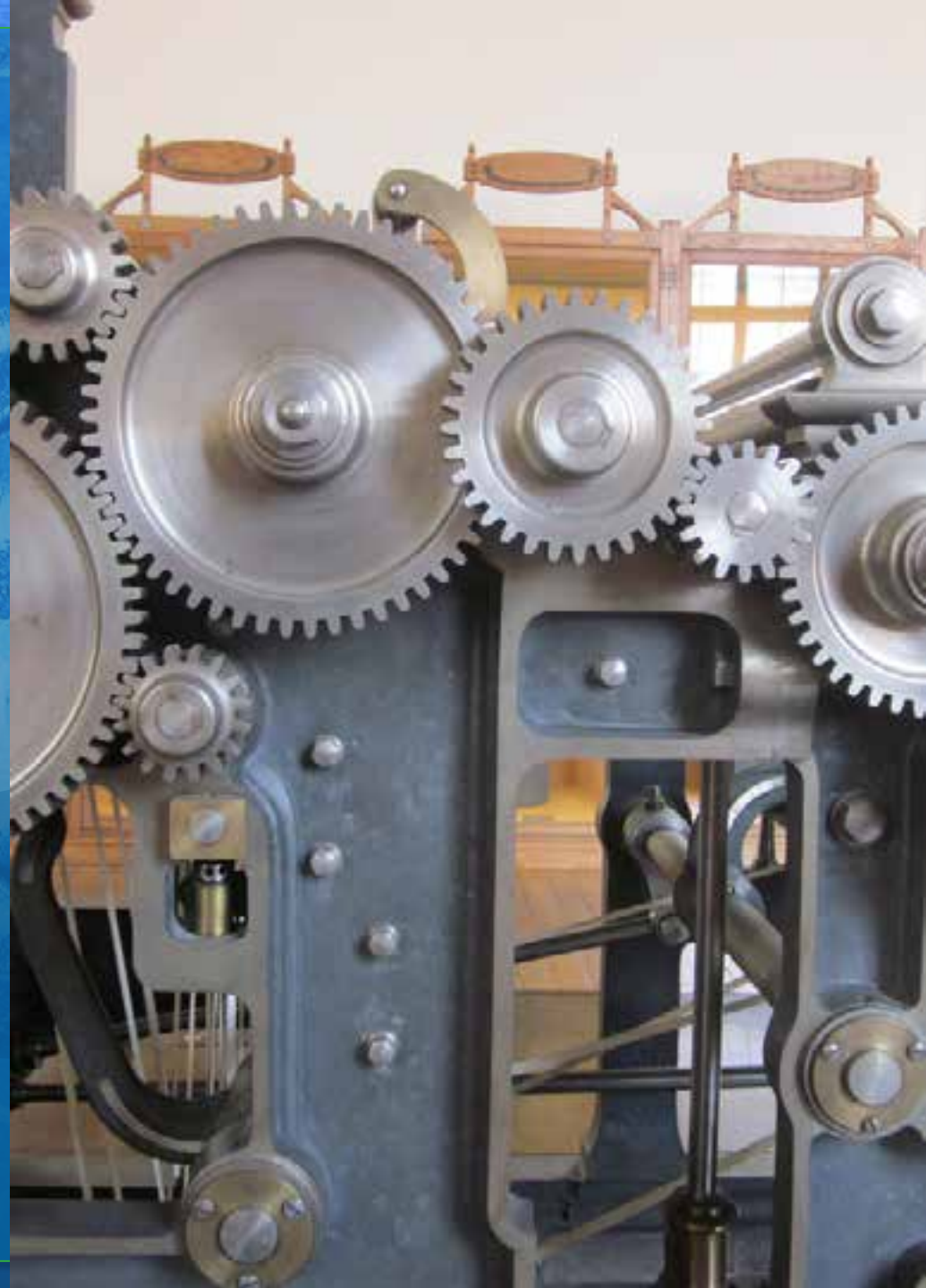


Spatial Index

Easily used by adding Spatial Indexing plugin to your layer or map

plugins:['esri/plugins/spatialIndex']

- `indexType` ('rtree' or 'kdtree')
- `Intersects` (rtree only)
- `nearest` (kdtree only)
- `addLayer`, `removeLayer`, `setMap`, `unsetMap`, `stop`



Index & Rendering Demos

- Buffer Query
- Nearest Points
- Known Geometry Binning
- Density Surface

More samples and information on
github page:

<http://mpriour.github.io/ds14-workers/index.html>

Questions?

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Understanding our world.