Hands-On II:
Ray Tracing
(data parallelism)

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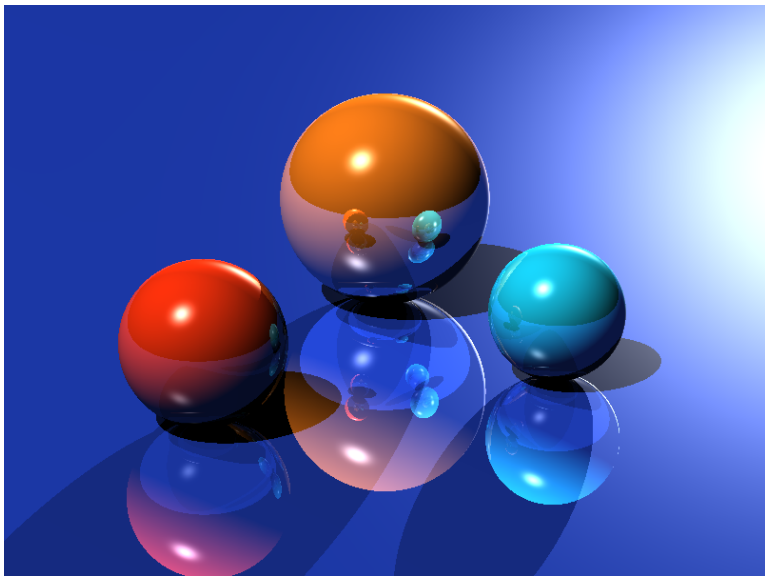
Goal: Build a Parallel Ray-Tracer



We're providing:

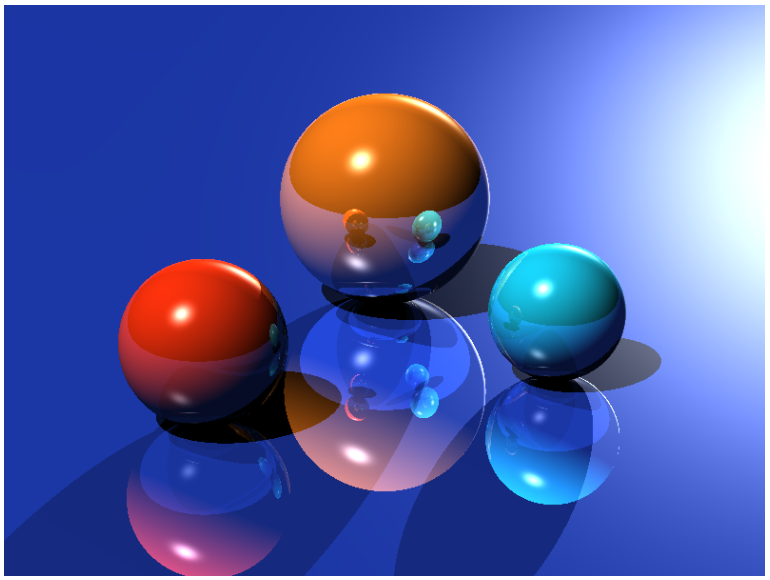
- two scene files
  - **scene:** a simple 4-sphere scene
  - **sphfract:** a fractal pattern of spheres
- framework code: **c-ray.chpl**
  - to read a scene
  - to do the ray tracing computation
  - contains computePixel() routines:

```
proc computePixel(y: int, x: int): pixelType { … }
proc computePixel(yx: 2*int): pixelType { … }
```

- a helper module to write arrays as PPM or BMP images: **Image.chpl**
- sample output files (*.bmp, *.ppm)

- These files are available from the hands-on resources page:
  - http://chapel.cray.com/tmp/ACCU2017/files.html
  - Also available on swan: /tmp/chapel-ACCU2017 or ~bradc/ACCU2017

Goal: Build a Parallel Ray-Tracer



Your goal is to:

- declare the array of pixel values
- use computePixel() to fill it
  - serially
  - in parallel
  - optionally: promoted
  - optionally: dynamically load-balanced
  - optionally: distributed
    - may make more sense this afternoon
- compare timings for various versions

(You're also free to pursue any other Chapel coding you like)

- code up a computation of interest to you
- look through primer or benchmark examples in the release
  - $CHPL_HOME/examples
- …

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