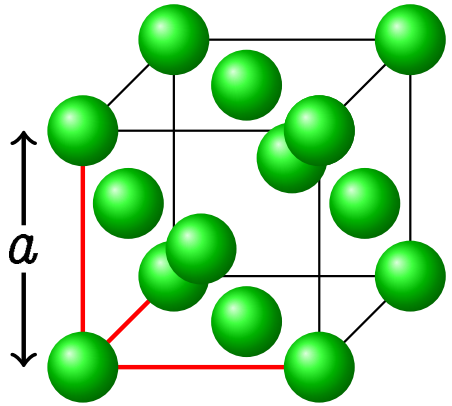
face centered cubic (fcc)

Conventional view: simple cubic lattice + 4 atom basis



- The conventional unit cell is a cube, side a
- 4 atom basis: $8 \times \frac{1}{8}\ (corner)\ + 6 \times \frac{1}{2}\ (face)$
- $(u, v, w) =$
  $(0,0,0),\ (\frac{1}{2},\frac{1}{2},0),\ (\frac{1}{2},0,\frac{1}{2}),\ (0,\frac{1}{2},\frac{1}{2})$
- $R_{nn} = a/\sqrt{2},\ PF =$
- e.g Cu, Ag, Au, Ni, Pd, Pt ▸ ductility

The primitive unit cell contains 1 atom: primitive vectors ▸ unit cell

- $\vec{a} = \frac{a}{2}(\vec{i} + \vec{j}),\ \vec{b} = \frac{a}{2}(\vec{i} + \vec{k}),\ \ \vec{c} = \frac{a}{2}(\vec{j} + \vec{k})$, volume $V = a^3/4$
  [check!]