

body centered cubic (bcc)

Conventional view: simple cubic lattice + 2 atom basis

- ▶ The conventional unit cell is a cube, side a
- ▶ basis: 2 atoms:
 $8 \times \frac{1}{8}$ (*corner*) + 1×1 (*inside*)
- ▶ $(u, v, w) = (0, 0, 0), (\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$
- ▶ $R_{nn} = \sqrt{3}a/2, PF =$ ▶ packing
- ▶ e.g. alkali metals, Ba, V, Nb, Ta, W, Mo, Fe

Primitive cell contains 1 atom: primitive vectors

$$- \vec{a} = \frac{a}{2}(\vec{i} + \vec{j} - \vec{k}), \vec{b} = \frac{a}{2}(-\vec{i} + \vec{j} + \vec{k}), \vec{c} = \frac{a}{2}(\vec{i} - \vec{j} + \vec{k})$$

- ▶ volume $V = |\vec{a} \cdot (\vec{b} \times \vec{c})| = a^3/2$ [check!]

